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HOME FLORICULTURE





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PAGE'S

Home Floriculture

A Complete Guide for the GROWING OF
FLOWERS in the HOUSE and GARDEN.

CUT FLOWER WORK—LANDSCAPE
GARDENING, ETC.

BY

CHAS. N. PAGE

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"FEATHERED PETS," "AQUARIA," ETC.

PUBLISHED BY THE AUTHOR
DES MOINES, IOWA

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*Ancient Coat of Arms of
the Page Family*

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PREFACE

The prime object in preparing this book is to simplify the culture of flowers so that every one can succeed with them, and thus make them more popular everywhere.

While there have been many books on the culture of flowers, still almost without exception they are prepared either for the benefit of professional florists or are written in such a manner that they are not readily understood by the amateur. Technical terms and phrases and botanical words are used which obscure the meaning to the ordinary reader. The few really practical books on this subject which have been published are sold at a price which puts them out of reach of persons who have but little space or means to devote to flowers.

For more than twenty-five years I have been actively interested in this subject, being connected with a large firm of seedmen, bulb growers and florists and at the present time have several greenhouses and more than ten acres of flowers growing on my home place. I have also traveled extensively among the leading growers and specialists in this line in the various parts of this country and Europe, and for five years was editor of a horticultural Magazine. In "Home Floriculture" I have tried to combine the information secured from various sources, in such a manner that it will be of practical interest to the readers of this book.

That it may prove of great benefit is the earnest desire of

THE AUTHOR.

Nature's Work

"Lo! on each seed within its slender rind,
Life's Golden threads in endless circles wind.
Maze within maze the lucid webs are roll'd
And as they burst, the living plant unfold.
The pulpy acorn, ere it swells, contains
The oak's vast branches in its milky veins,
Each ravel'd bud, fine-film, and fibre-line,
Traced with nice pencil on the small design.
The young Narcissus, in its bulb compressed,
Cradles a second nestling on its breast;
In whose fine arms a younger embryo lies.
Folds its thin leaves, and shuts its floret-eyes;
Grain within grain successive harvests dwell,
And boundless forests slumber in a shell."

THE LOVE OF FLOWERS.

"It would be folly to gild refined gold, paint the lily or add perfume to the violet."

What is there more charming in the natural world, than a nice flower garden? No spot can contain so much which is really beautiful and attractive and no pen can describe the wonderful variety of flowers which it may contain or the ever-changing beauties. The garb of no earthly monarch has ever exceeded them in glory, as they are beyond the skill of human art.

It requires neither age, knowledge, nor fortune to enable one to love beautiful flowers. The growing of flowers appeals to our nature in more ways than one. It gratifies an inborn desire for beauty; it satisfies our cravings to beautify our surroundings and make them better by our own efforts, and we feel that in some way we can benefit others as well as ourselves; it affords a natural and wholesome reaction in times of restlessness and toil, and brings us into closer, more sympathetic touch with Nature. Lord Bacon says: "God Almighty first planted a garden, and indeed, it is the purest of human pleasures, it is the greatest refreshment to the spirits of man,

house, and a neat and well-kept garden. The housewife who takes pride in her flower garden, generally has a home also which she can be proud of, even if the house itself is small and inexpensive.

Don't let anyone make you believe that luck has anything to do with success in cultivating flowers. It requires industry and care to succeed with them, and if you really love flowers, you will soon learn what their wants are. In starting either a window garden or an outdoor flower garden, select, to begin with, varieties which are easily grown, and do not begin with exotic plants or high-priced novelties. Study your plants, and try and select varieties which are adapted to the various situations which you have ready for them.

*"God might have bade the earth bring forth
Enough for great and small,
The oak tree and the cedar tree,
Without a flower at all.*

*He might have made enough, enough
For every want of ours—
For luxury, medicine, and toil,
And yet have made no flowers.*

*Our outward life requires them not—
Then, wherefore, have they birth?
To minister delight to man;
To beautify the earth.*

*To comfort man—to whisper hope
Whene'er his faith is dim;
For whoso careth for the flowers
Will much more care for Him."*

BOTANY.

To appreciate the beauty of flowers and become truly interested in floriculture it is well to have at least a rudimental knowledge of botany. It is not the purpose of this book to teach botany, but simply to give an introduction to it, hoping to lead to further research. Should you find botany from text-books a dull study, go to the fields, woods and gardens and learn direct from observation of the plants and flowers themselves and you will surely find this plan a source of perennial delight. By studying nature you will not only learn to enjoy the flowers better, but you will find "tongues in trees, books in running brooks, sermons in stones, and good in everything."

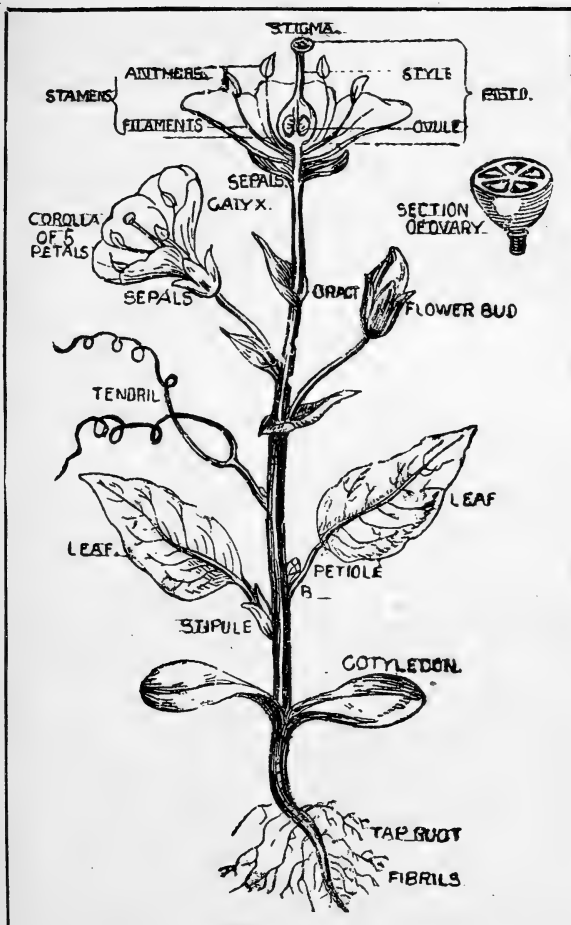
The study of botany is one of the most desirable pursuits for invalids who are not able to work, but still who find the time hanging heavy on their hands.

One desirable feature of this pursuit is that it takes the student out of doors, so that he breathes plenty of fresh, pure air, and in examining the plants closely and studying their nature, he forgets to think of his own ills and troubles, and is, therefore, better able to fight disease. Instead of walking simply for exercise, he has some definite aim in view on his long trips through the woods and country. When he is so inclined, he can have a sketch book along and outline the different flowers and leaves. He can also have some good reference book on the wild flowers, which will

help him to recognize them at sight, and before long, his portfolio of specimens of native plants will be of decided interest to his friends, as well as to himself. He will soon become accustomed to the ordinary botanical terms and secure real pleasure from the study, while if he undertook to make a study of botany in the house from books, he would soon lose interest and it would become tiresome. As one writer has well said, "A little genuine enthusiasm in this study will put more life into a sick body than all the drugs in the dispensary." If the shut-ins are disposed to try it, their friends will bring sufficient specimens to interest them, until they are able to get out into the fields themselves.

One does not become a botanist by reading or studying books on this subject, as it is necessary to study the plants themselves. Take them to pieces and closely examine the various organs and parts of which the plant consists. The beginner can hardly do better at the outset than to examine the structure of some common kinds of large seeds, such as corn, beans, squash, morning-glory or sunflower under the microscope and then sprout them and watch their growth, making analysis of various seeds from time to time as the growth progresses and learn what you can of the manner of both top and root growth.

Most plants consist of root, stem, branches, leaves, flowers and seed. The root is that portion which extends down into the ground and secures from same the moisture and nutriment



A COMPOSITE PLANT SHOWING THE IMPORTANT PARTS

on which mainly the plant subsists. Some plants, such as peas, beans, clover and other legumes, have the power of gathering nitrogen from the air and depositing it in the soil and thus their growth really adds to its fertility instead of detracting from it. By observation you will notice a great difference in roots such as fibrous, branching, tuberous, etc.

The stems of plants are of various shapes, round, square, triangular, etc. Some stand erect, others are prostrate, trailing or climbing. Some stems are smooth, others branching in their habit of growth.

The first small leaves which appear on a young seedling are called seed leaves or cotyledons. Next the so-called permanent or character leaves appear and they are of almost all shapes imaginable and with various systems of veining.

It is apparently the prime object in the life of every plant (with very few exceptions) to produce seed for the continuance of its kind and this it does by means of flowers which are usually of more or less showy or attractive shapes and colors.

The petals or flower cup surrounds the reproductive organs, which consist essentially of the stamens and pistil or pistils.

The stamens produce the fine powdery material called pollen on the anthers or tips of their slender stalks. These particles or grains of pollen are deposited on the roughened surface of the pistil or seed-bearing organ from whence through tiny tubes it reaches the little

ovules in the ovary below and quickens them into life so that seed is produced. If this, pollen on the stamens is removed or in any way destroyed no seed will be formed or the



MAGNIFYING GLASS

seed will be imperfect, having no life germ in it. In most simple flowers these parts can readily be seen with the naked eye or better studied with the aid of an ordinary magnifying glass. In most flowers cross fertilization is necessary, that is

the pollen from another flower is essential in order to properly fertilize the receptive organs, the pollen produced by the same flower having no effect or not making seed capable of growing as perfect or healthy plants.

By their bright-colored petals, by their fragrance or by the little glands of nectar or, honey, insects are attracted and by their visits from one flower to another the pollen is distributed and cross fertilization is effected in this way as well as by the influence of the wind. To identify a plant about which there is any doubt a botanist always wants to see the flowers. Botany is essentially the study of flowers, although it takes in the entire vegetable kingdom which like the animal kingdom is divided into numerous subdivisions. The lower forms are often so closely allied that it is sometimes almost impossible to distinguish between vegetable and animal life even under a powerful microscope. As animals are di-

vided into the general classes of mammals, birds, reptiles and fishes and these are separated into many subdivisions, so plant life is divided into numerous classes which are divided into orders, genera and species. These species may consist of a great number of varieties which are constantly being increased by high culture, crossing or sports.

HOW NEW VARIETIES ORIGINATE.

During the past few years, the horticultural papers have been full of items regarding Luther Burbank, Dr. Franceschi and other horticultural experimenters who claim to have originated new varieties of flowers or vegetables, and we believe that many of our readers are interested in this subject.

It is generally conceded by the best posted horticulturists that there is no known way whereby anyone can produce a sport or freak in plant life, but Nature responds to high culture and is more successful by means of insects in arranging so-called hybrids or crosses, than by any efforts of man.

Some time ago the writer made a trip among the seed growers of Europe and while in central Germany his attention was especially directed to the large number of plants growing there in pots on benches or stages, as they are called, under shelter. In some cases there were more than 100,000 five to seven-inch pots each one containing a plant of Stocks, double Petunia, or some other flower which required hand hybridizing or crossing. These require

very careful, intelligent labor to produce the results. The flower that is intended to be operated on must be carefully watched and the moment the bud unrolls, the stamens are carefully removed to prevent the action of the pollen which they would produce. Then with a small camel's hair brush, some pollen is taken from the anthers of another plant, selected for hybridization, and carefully placed on the stigma or pistil of the flower to be hybridized. These pollen grains extend themselves down through the pistil and into the ovary, and the process of hybridization is complete. The seeds produced will doubtless partake largely of the character of the mother plant, but a certain proportion of them will resemble the plant from which the pollen was taken. These crosses are usually made between different varieties of the same species, and real hybrids are rare. Plants are arranged in natural groups or families and they can be hybridized only by plants of the same family. These families are usually composed of several smaller groups called genera, which bear great resemblance to each other, but are distinct in certain prominent characteristics. Each genera usually has several divisions called species. Sometimes hybridizing is done by nature, caused through the agency of the winds, or insects.

There is much pleasure in trying for yourself to cross-fertilize flowers so as to secure new varieties. It does not require an educated expert to perform the operation, as it is quite

simple. All that is required is sufficient understanding of the structure of plants so as to know the difference between the stamen and the pistil. The only tools needed are a pair of sharp, fine-pointed scissors, a pair of tweezers, and a small soft camel's hair brush. You will have better success, if you make your experiment early in the season, when plants are in full health and vigor instead of waiting until nearer to the end of the summer, when plants may be past their prime. Select for your experiment not only strong, vigorous plants, but blossoms which are as perfect and well formed as possible, and also of the desired color or markings. Decide what point you are going to work for. Possibly you have a plant of strong, vigorous growth, but rather small flowers, and another of inferior habit, but with exceptionally beautiful colors. Select a good flower on each plant, which are open at the same time, and choosing the most vigorous plant to bear the seed, remove every stamen from the flower, as soon as it is open. After removing the stamens, tie a piece of gauze cloth over the blossom to prevent the introduction of pollen, by the insects. Examine the flower occasionally, and as soon as the other flower, which you are going to fertilize is ready, take off the gauze bag, and with your brush transfer some of the pollen and place it on the extreme end of the pistil of the flower, from which you cut the stamens, replace the gauze bag upon the latter flower and allow the seed to ripen. It is a good plan on this seed

bearing plant, to remove all the flowers which you do not hybridize by hand, so as to throw the strength of the entire plant to the production of strong seed. It is well to try your experiment first with some wide open flower, as it will be easier to succeed with it than with a small, close-flowered plant. The next season when you are growing these young seedlings, you will be greatly delighted in watching the unfolding of the flowers, as possibly they may develop into some rare beauty, different from anything heretofore known.

It must be admitted, however, that very few crosses between flowers which are very different from each other are of any practical value and they are usually inferior to either of the parent plants, probably not more than one out of a thousand shows a decided improvement, so as to be worthy of future culture. The insects succeed much better in distributing the pollen, however, and many growers who desire to cross certain varieties, plant alternate rows of the kinds and the second year they may find some few plants which are a real improvement, and these are established by a continuation of careful seed selection through a series of years.

Sometimes after a variety has been grown and kept strictly pure for a number of years it will "break" or "sport," and produce a "freak" different from anything ever seen before. Men with a trained eye will notice the slightest variation from a type and if it is an improvement will try to perpetuate the same.

SLEEPING FLOWERS.

At nightfall many flowers and plants go to sleep. Soon after sunset the white petals of the common white daisy close gently over the flower's golden eye and they again look like half opened buds, the *Portulaca* folds its bright flowers up closely for the night and even the leaves grow sleepy and cuddle up closely around the stem. The Sensitive Plant (*Mimosa*) folds its leaflets closely together, as does also the little *Oxalis*, the Locust and *Wistaria*. The Red Clover bows its proud head and its leaflets approach each other face to face, as if in evening devotion, and even the showy dandelions close their bright eyes for a long sleep and do not awake until the sun is high in the heavens the following day.

Some flowers, however, are decidedly nocturnal in their habits. The Moonflower does not dare to show its head during the hours when the sun reigns supreme, but at nightfall and on dark, gloomy days, we can revel in their beauty. The *Yucca*, Honeysuckle and white Day Lily usually open their fresh flowers in the evening as does also the Evening Primrose (*Oenothera*) which opens with a visible start and popping sound. These night bloomers are also much more fragrant in the evening and some flowers such as the night blooming Jasmine, which are decidedly plain and unattractive in appearance and also without odor during the day, at nightfall throw out an almost overpowering fragrance noticeable

at a considerable distance from the plant. There are also many other flowers which open at certain hours of the day like the well-known Four O'clock (*Mirabilis Jalapa*) and while it would not do to set a clock by them or use them as a guide in catching a train, as their opening is regulated to some extent by the state of the weather, still their seeming knowledge of time is truly wonderful.

GROWING FROM SEED.

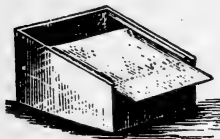
By far the most simple method of propagating most varieties of plants is by means of seeds. Many of the ordinary varieties of flower seeds, such as Alyssum, Mignonette, Candytuft, Sweet Peas, Phlox, Poppies, Nasturtium, Morning Glory, etc., may be sown in the open ground where the plants are to stand. Prepare the place for them by digging the soil up deeply; thoroughly pulverize and rake so as to remove or break to pieces any large clods and make a fine, even surface. The seeds may be sown as early as danger of severe frost is past and if you sow the seed in rows it makes the after cultivation very much easier. Cover the seed about four times its diameter and press the soil firmly over the rows. Large seeds like Sweet Peas, Morning Glory and Sunflower, should be planted some deeper, however, about two or three inches being right for Sweet Peas. Seed should be sown fairly thick to allow for some which will not grow, either from lack of vitality or from some un-

favorable condition of the soil, insects, lack of moisture, etc. Should the seedlings come up too thickly, as most of them are likely to do, thin them out so that the plants will stand four to eighteen inches apart, according to the habit of growth of that variety. If you do your thinning in the evening or on a cloudy day the plants removed may be transplanted to other locations. A few varieties, however, like the Annual Poppy, are impatient of being disturbed and it is almost impossible to successfully transplant them.

Many kinds of flower seeds should be started indoors or in a hotbed and this includes a large proportion of our best and brightest summer flowers such as Verbenas, Pansies, Asters, Heliotrope, Salvias, etc. In this way you will not only secure more robust, well-grown plants, but you can start the seed early in the season and thus have a much longer season of bloom. By starting the seed in January, many of the biennials and perennials can be induced to bloom the first year.

In starting seeds in the house, it is best to use shallow boxes or earthenware seed pans, about two inches deep, being sure that there is good drainage so that the soil will not become waterlogged, soggy or sour. We prefer to use a box about two and one-half or three inches deep, so that there will be about an inch space between the soil and the top edge of the box to give room for the young plants below the glass. Covering the box with a pane of glass helps to keep the temperature even and

retains the moisture. The accompanying illustration shows a somewhat deeper box with sloping top. Seeds germinate more readily in



GLASS COVERED BOX

light, sandy soil and if obtainable we would recommend a mixture of one-third sand, one-third leaf mould and one-third common garden soil. Sift so as to remove lumps and put the soil in good condition. Press the soil down lightly with a block or similar flat surface and after sowing the seed and covering, press it down firmly. If the seed is very fine, like Begonia or Petunia, it will require no covering of soil.

The first time the box is watered, if it is not too large, we set it into a pan of water and let the moisture soak up slowly from below. Later waterings can be made from above, by sprinkling in the usual manner when it seems to require it. Do not sow any kind of seed when the soil is wet.

Finely pulverized and sifted sphagnum moss sprinkled over the box in which fine flower seeds have been sown, will help keep the soil moist and the seeds will germinate better.

Darkness, and definite amounts of heat, moisture and oxygen are required for the germination of seeds. It is not necessary to mix fertilizer with the soil in the seed box, as seeds are stored with sufficient energy to enable them to develop a certain length of shoot and root and it is not necessary to have the soil

very rich, provided it is intended to transplant the seedlings. Keep the box in a fairly warm place and as soon as the plants begin to prick through it must be brought to the light.

As soon as the young plants attain their first permanent leaves they may be pricked out into a shallow box, giving each plant sufficient room for its development, or if the weather is favorable they may be transplanted to their permanent places in the open ground.

In transplanting young seedlings in the house, care must be exercised in watering, as they are quite subject to damping off. This is really a fungus which attacks the plant, just above the surface of the soil, and rots them off. It spreads very rapidly and sometimes sweeps off hundreds or thousands of young plants in a single night. Should your seedlings become affected in that way, remove at once those which have been killed and scatter lime and sulphur over the surface of the ground, around the edges of which the damping off occurred, so as to prevent further spread of this trouble.

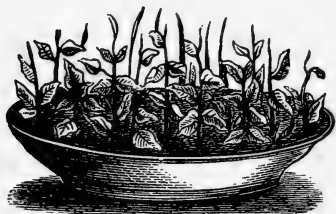
It was formerly assumed by many writers that it was highly expedient, where possible or practicable, to sow all seeds where the plants were intended to grow and that transplanting not only caused additional labor, but was really a disadvantage to the crop. The reverse is really the case with most varieties of flower seeds, excepting only such sorts as have a tap root like annual Poppies and thus are difficult to move.

It has been proven conclusively, by almost endless experiments, that transplanting is really essential to superior cultivation, as it checks in some measure the natural tendency to "wildness" in the growth and will make more symmetrical, perfect-shaped specimen plants, as well as earlier and better bloom. With many varieties better success is secured by transplanting once in the house or hotbed before the final setting out in the open ground, and still better if you can grow in pots and shift from one pot to a larger one as the plant increases in size. In this way the roots are all confined in a small space and make a ball of roots around the plant which help to properly sustain it when first set out. In transplanting or "pricking out," as it is called, the small seedlings, care should be exercised not to pull them out of dry soil or a large proportion of the small, tender roots will be broken off. In all cases the bed where the seedlings are growing should be thoroughly watered and, if needful, a small stick or trowel may be used to break the ground or lift or pry up the roots. If the plants have been too much crowded in the seed bed and are somewhat drawn out or "leggy," they should be planted somewhat deeper than they stood before, but never so deeply that the soil reaches the leaves, which should always be above the ground and free to the air.

PROPAGATION OF PLANTS.

Growing plants from seeds is the most simple method of propagating and it is treated in the previous chapter. Many kinds of plants, however, are more readily or better propagated by cuttings or division of roots. A cutting may be briefly

described as a separate portion of a plant, which can be caused to produce new roots, branches and leaves and to become an independent plant.



CUTTINGS ROOTED IN A DISH

Such a cutting when placed in sand or soil establishes a communication with the soil and takes up life as an individual plant.

Most plants are more readily grown from soft wood "slips" or cuttings, of which Geraniums, Begonias and Coleus are examples.

Where Geraniums, Begonias, Heliotropes, and other soft-rooted plants are desired for the winter window garden, cuttings may be made any time during the summer, and be planted partially under the shade of the parent plant in the open ground, being sure that they are well watered, and it is a good plan to put the cutting in towards evening, and shade them for a day or two with newspaper. A still better plan, however, is to take a box of any handy size, and about three or four inches deep, fill

the box two-thirds full with sand, press it down evenly and cut a mark with a knife down through the sand to the bottom, across the box. Cuttings may be placed in these marks from a half inch to two inches apart in the row, according to the nature and size of the cuttings; for very small cuttings these rows may be put in about an inch and a half to two inches apart; for more sturdy sorts better



ROSE



CARNATION

make them three inches apart. Tip cuttings usually are the most desirable, though when many plants are desired, and you have but a limited amount of stock to cut from, practically the entire plant may be cut up into short lengths of one or two joints.

These cuttings should be made with a sharp

knife, so as to make a clean cut. After cuttings have been placed in position, press the soil firmly around them, and water thoroughly to begin with, and occasionally thereafter as the plants appear to need it. In a few days, it will be found that the lower end of the cutting has calloused, and soon thereafter the roots will start. After the cuttings have struck root, they may be potted singly into small pots and shifted from time to time into larger pots as the season progresses.



GERANIUM



ALTERNANTHERA

The accompanying illustrations made from cuttings rooted in the writer's greenhouse, show the manner of rooting while in the cutting bed, the dotted line showing surface of the sand. All of these have made some leaf growth while in the sand, especially the

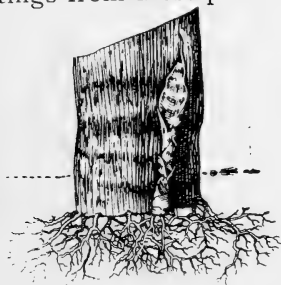


HELIOTROPE



COLEUS

Alternanthera, which was only a little sprig when put in, and the roots you will notice come out at each joint, but not between. Cuttings from most plants will root more readily



SANSEVERIA

if made at or just below the joint. The Coleus cutting was made between the joints and you see it has thrown out a wonderful mass of small fibrous roots. The Sanseverias are propagated by cutting the long sword-like leaves into small

sections an inch or two long. It roots readily and soon sends up young sprouts. The Geraniums frequently begin blossoming while in the cutting bed.

Some plants, such as the Bouvardia and Camelia Vine, are more easily propagated by means of root cuttings, using small sections of the root about an inch long and sowing them thickly in the rows in the propagating bed or in a box of sand or soil, and in a short time they will look like a row of young seedlings.

Other plants, such as the Rex Begonias, are the most readily propagated from leaf cuttings. The large, nearly mature leaves are used and they may be either laid down on the sand firmly held down with bent toothpicks or small hairpins. Cut the large ribs in several places and you will often secure quite a number of plants from one leaf. Or the leaf may be cut into several parts and stood up edgewise in the sand. One of the most curious plants of this



BRYOPHYLLUM

class is the Bryophyllum which has notched leaves and if left lying on the soil a young plant will spring up from each notch. The Saxi-

fraga sends out strawberry-like runners, each of which produces one or more little plants, and when grown in a hanging basket these plants look quite curious suspended in midair.

Some plants, such as the shrubs, can be better grown from mature or hardwood cuttings and best results are obtained by making the cuttings in the fall and burying them in sand in the cellar, where they will slowly callous. They may be brought to the light and planted

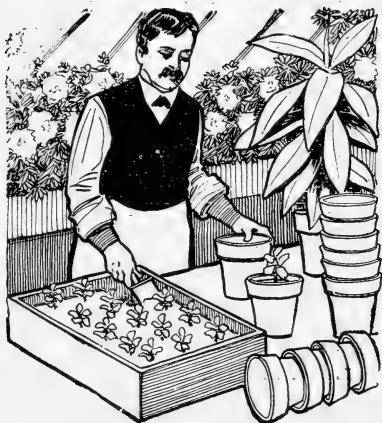
in the cutting bed early in the spring or set in rows in the open ground. They will then be ready to make root growth at once and soon become sturdy young plants. The expense of propagating shrubs and hard-wooded plants in this way is much less than by any other method.

Verbenas, Honeysuckles, Ivies and other plants which throw out branches procumbent on the ground are readily propagated by layering. Bend the stem down and cover it at intervals with soil, pegging it down to hold it securely. If an incision or cut is made with a sharp knife on the under side of the stem just below a joint it will root more quickly. It should be understood, however, that in layering the tip of the stem must be left uncovered.

Many species of plants may be increased by simply dividing the roots. Some sorts separate easily with the fingers, but it requires a knife to divide others. Agaves and numerous other plants have offsets which cluster around the parent plant. They may be removed and potted separately and will at once take up an individual existence.

As soon as any kind of cuttings are well rooted in the house they should be taken out of the sand and potted and it is always best to use small pots at first, usually a two or two and a half inch pot is best. Put a little soil in the bottom of the pot, place the cutting well down in the pot, spreading the roots out, and

fill in the soil around it, pressing it down firmly with the fingers so that it is about a quar-



ter of an inch below the rim to leave room for water. If the young plants are to be kept in the house, where the air is dry, it may be necessary to bed the pots in a box or pan of sand, sawdust, or soil to prevent their drying out too rapidly. It is

best in the window garden to confine the roots of most plants in as small pots as they will do well in, otherwise there is a tendency of the soil to become sour. The best soil for plants is composed of well-rotted sod, mixed with about one-fourth pulverized, rotted cow manure and about one-fourth sand. Small pieces of charcoal placed in the bottom of the pot are beneficial and will help keep soil pure and sweet. If you are where you can obtain leaf mould, it is just as good, if not better, for many plants than the soil and manure, but should have some sand mixed with it.

In potting plants, the soil should be slightly moist, but never wet, as soil should never be

handled when wet, as it is apt to cake it so as to make it unfit for plants to grow in.

It was formerly thought that nearly every kind of plant needed a soil specially prepared for it, but this was a mistake. Ninety-nine out of every hundred plants, that can be grown in the house, will do well in any good soil that is not too heavy and compact to allow water to run through it readily. Roses, however, will do better if the soil is rather heavy and contains a considerable proportion of clay.

The plants should be shifted to larger sized pots, as they grow and become potbound, and any pot more than three inches in diameter should have something in the way of drainage in the bottom. Pieces of broken pots, brick, or charcoal are excellent for the purpose.

In almost all books of floriculture you will find the statements that the pots should be porous and not glazed. These books, however, are usually written by florists, and have special reference to plants grown in the greenhouses. It is important to have porous pots for plants which are grown close together on a greenhouse bench, in the moist atmosphere, but it is not as important for the private grower in the window garden. We have seen many beautiful plants growing in glazed pots, and even in tin cans, painted flower pots, etc. While it is sometimes difficult to secure glazed pots, as there are few potteries which make them, still if you can obtain such, you will find that they will look more tidy, and it is

easier to keep them clean. The ordinary flower pots to begin with are not handsome and they are very apt to get dirty and covered with fungus growth.

In some localities it is difficult to keep the flower pots clean, as the green algae grows on them, and gives them an unpleasant appearance, so that they require scrubbing often. In order to kill this and prevent the pots becoming green, it is well to soak them for about an hour in a solution composed of carbonate of copper, one ounce; ammonia, one quart, and diluted with eight to ten gallons of water. Of course, by using a jardiniere, as an outside covering for the flower pot, this trouble is remedied, but be sure that the water does not gather in the jardinieres. Many plants are killed by having too much water applied to the roots in this way.

POTTING PLANTS.

In the fall of the year as cold weather approaches, we dislike to see our summer favorites perish, and therefore, bring such of them to the house as will look well in the window garden. In lifting them from the open ground, try and secure all of the roots possible, and if many of them are broken off, it is advisable to prune or trim the plant at the time of potting. The vitality and vigor of the plant are due to the innumerable roots which sometimes are so small and threadlike as to be almost invisible, and at the same time so tender that they read-

ily separate from the main root when the ground is disturbed. These fine, fibrous roots are sometimes called "working roots," as they gather the nutriment from the soil. When the plant is potted and many of these small roots removed, it is necessary for them to start again, before the plant can recover its full vigor, and if the plant is not pruned, there is such a heavy proportion of leafage compared to the root, that there is a tendency of the leaves to become yellow and drop from the stem.

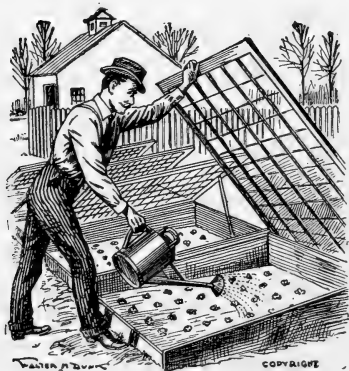
After plants are lifted from the open ground, they should be kept in the shade for several days and gradually brought to the light. Water thoroughly to begin with, but do not keep them overly wet. The soil for potting should be mixed thoroughly, and we usually sift it through a coarse screen to remove the lumps. This makes a good general mixture for Geraniums and most soft wood plants. Roses grow better if the soil is part clay, and the bloom is usually much brighter in color.

It is a still better way when plants are desired for winter blooming, to put them in fair-sized pots in the spring and plunge these pots into the open ground. While this gives the plant the benefit of outdoor conditions and makes it more healthy, still the roots are confined to the pot when the plant is lifted in the fall, and are not mutilated. In plunging the pot in this way, however, it is well to cover the hole in the bottom with a stone or some substance which will prevent the tap root go-

ing through the hole and causing trouble when the pot is taken out. Keep the soil loose in pots by stirring the top soil frequently and as deeply as possible without disturbing the roots. If the soil is hard and packed you cannot expect handsome plants nor abundant flowers.

HOTBEDS.

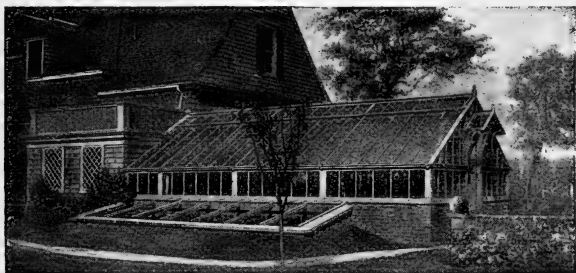
If you have no greenhouse, you will find that a good hot-bed is one of the most important adjuncts to either the vegetable or flower garden. Many varieties of flowers should be started early and the hotbed enables one to either start the seeds or root the cuttings. A well-drained corner of the garden, sheltered



from cold winds, but fully exposed to the light and sunshine from morning until night, is a good place for the hot-bed. An excavation should be made about eighteen inches deep,

six feet wide and as long as desired. The hot-bed sash are about three by six feet and a

frame should be made of boards or plank of proper width to fit them, with one side sufficiently higher than the other to make a good drainage. After filling the excavation with fresh horse manure from which the first rank heat has passed off, tramp it down so that it fills the space about fifteen inches deep. Then put on the wooden frame and cover the manure with a layer of about five inches of good finely-sifted soil. Bank up around the outside of the frame with manure and soil to protect from severe weather and put on the sash. The temperature should be about 75 degrees when ready to sow the seed. Should it become very much too hot, ventilate by making holes down into the manure to let off surplus heat. Be careful about overwatering, and on warm, sunny days it may be necessary to shade the glass and to raise the sash a trifle at one edge for ventilation.



HOTBEDS BESIDE A GREENHOUSE

A cold frame is like a hotbed, but is made on the surface of the ground without any ex-

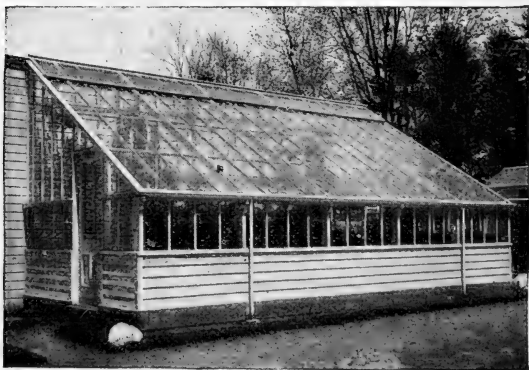
cavating nor manure, except that it is well to bank up the frame around the outside. During cold nights and stormy days, the beds should be closely covered with sash and in severe weather further protected with straw, mats or shutters. These frames are particularly useful in the south.

PRIVATE GREENHOUSES.

*"Who loves a garden loves a greenhouse too.
Unconscious of a less propitious clime,
There blooms exotic beauty, warm and snug,
While the winds whistle, and the snows descend."*

—Cowper.

If flower lovers only realized the great amount of pleasure to be derived from having a private greenhouse, well stocked with plants, we are sure more persons would build houses. After all a greenhouse is simply a garden en-



A LEAN-TO GREENHOUSE

closed in glass; it adds months of enjoyment each year to your life, and to be fully appreciated should be located near the dwelling where you can pass many a happy hour working with your plants. If properly managed, greenhouse work is very healthful; not only is the handling of fresh soil beneficial, but the effect of the sunlight is decidedly advantageous.



INSIDE VIEW OF ABOVE LEAN-TO

If you can afford the expense, it is desirable to have an artistically constructed greenhouse, located in a sightly place, where it will add much to the appearance of the place, and there are almost endless variety of styles in such architecture. An ordinary architect knows very little about this class of work, and it is useless to consult them. It will be much easier

to take up the matter with some regular firm of greenhouse builders, make your wants known to them, and they will help you plan an attractive house. Any florist or seedsman can give you the names of these builders, or the writer can furnish the addresses if desired.

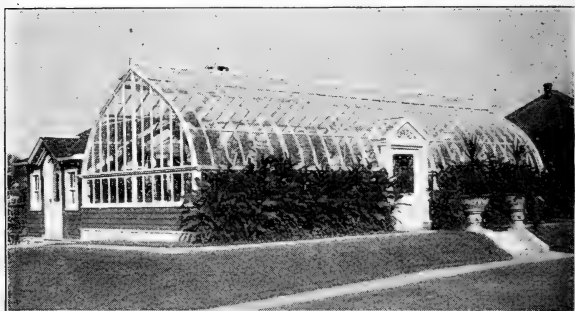
If you wish an inexpensive house, it will be easily constructed by any good carpenter, but it will pay you to purchase the sash bars, ventilators and some of the other material from some manufacturer making a specialty of that class of material. It pays much better to construct the greenhouse of cypress, as it does not rot like most ordinary wood, and is but very little more expensive. It pays to build well, so as to keep out severe cold. In this cold climate we prefer wooden walls instead of brick, stone or cement. The posts should be set deep in the ground, in order to make the building firm. Around the outside there should be two thicknesses of lumber, with two or three layers of tarred felt between to keep out the cold. Joints should be made with special care and it is best to have one thickness of the lumber put on horizontally and the other perpendicularly, so as to prevent any danger of the joints meeting and thus making ventilation which you do not desire. There is a great difference of opinion as to whether glass should have the panes placed end to end, or whether they should be lapped, but most florists now prefer lapped glass, but they make the lapping very narrow, only one-fourth of an inch. With the old style of glazing, where the glass was

lapped from half an inch to two inches, the frost would gather between the two panes and swell in such a way as to crack one or both of them. The dirt would also accumulate there making the house look unsightly, and also shading the plants at the very time when the most sunlight is desired.

There is also a great variety of manners of heating greenhouses. The old style of heating was by means of brick flues, somewhat similar to a chimney lying flat along the surface of the ground the length of the greenhouse, but turning into a perpendicular chimney at the end, to carry off the smoke. One private greenhouse in this city is arranged in that way with the opening for the furnace in the coal cellar of the residence, and this way keeps all smoke out of the greenhouse proper. Large greenhouses are the most profitably heated by means of steam, but it requires a night fireman. If your residence is heated with hot water, it is an easy matter to run a few pipes under the benches in the greenhouse to give the heat for the plants, and it is sometimes desirable to have one pipe suspended high in the house near the ridge pole, in order to keep the glass free from frost. The advantage of hot water heat is that it keeps the house more uniform and does not require the services of a fireman, during the night. As long as there is any fire at all the water will circulate in the pipes, while, with steam heat, it is necessary to keep the water boiling or the pipes will soon cool. By using several valves

in the pipes, the heat may be thrown at will either to the greenhouse or to the residence.

A cheap hot water heater suitable for a small greenhouse can be constructed in the firebox of the furnace used for heating your residence, by making a coil of pipes, or such a coil can be made in an ordinary heating



A HANDSOME CURVILINEAR GREENHOUSE

stove, placed in the basement or cellar of the house. An expansion tank can be placed at the highest point in the greenhouse to allow for expansion of the water in heating. A very little fire in such a stove will keep the water circulating constantly and heat a small building.

Before deciding positively on heating apparatus, it might be well to write to several manufacturers for their catalogs and by consulting with them you can better learn as to the number of pipes necessary to heat the

greenhouse that you expect to construct, and the best manner of placing them. Any suggestions which we might give in a book of this character would necessarily be in the line of general information. The cost of labor, lumber and other materials varies so greatly in different sections of the country that it would be impossible for us to try to estimate the cost of such private greenhouses. We might say in a general way, however, that the cost of constructing a greenhouse of the ordinary width, about eighteen feet, amounts to from \$7.00 to \$10.00 per running foot, including the heating plant. Of course, it may be constructed at a much lower expense, if attached to the residence, in the lean-to style, that is on the south side of a residence, with the glass sloping only one way, the highest point being next to the house. Such a house can even be heated by using registers from a hot air furnace. During very cold nights, it might be necessary to cover the roof with light wooden shutters, or canvas.

Such a greenhouse is very cheap, and a great variety of plants and flowers can be grown in it. You will also find it convenient for starting cabbage, tomato, pepper, egg plants and other plants for the kitchen garden, besides growing lettuce, radishes, onions, rhubarb, mushrooms, etc., for winter use. Grapes and strawberries can also be ripened in such a house during the winter if you care to give space to them.

By having a private greenhouse you will be able to supply the table and living rooms of

the house with plenty of fresh flowers during the winter without any necessity of visiting the florist. While it is true that nice plants can be grown in the window garden, very much finer ones can be produced in a greenhouse, where all conditions of temperature,



A BOWER OF BEAUTY IN THE WINTER

moisture and light are better suited to their perfection and a very much greater variety of plants and flowers can be grown. In some cases the opening is made direct to the house, so that they can be entered from the residence, and ladies who are somewhat delicate, greatly enjoy the work which is highly beneficial to the health.

WINDOW GARDENING.

A lady who truly loves flowers and is enthusiastic in their care will succeed with her plants and have not only nice, healthy, well-shaped specimens, but an abundance of bloom. Her flowers are her children and they are properly housed, fed and shielded from disease and insects which would injure them. A true love of plants and flowers combined with a clear perception of plant life, its nature and requirements, will prove a most trustworthy help in the care of house plants. Of all the many species of plants, usually cultivated in greenhouses, there are few that could not be successfully reared, or made to thrive, in an ordinary living room. The exercise of good judgment in the selection and arrangement of house plants, has to be relied upon for the attainment of pleasing decorative effects.

There is always a temptation in the window garden to propagate too many plants, and to have too many of the same variety. This is undesirable. It does not pay to water and care for a multitude of plants, which are alike, when with the same care you can have a greater variety and you will enjoy the window better.

A few well-grown, shapely plants are far more desirable than a large number which are crowded together in a limited space. Plants in a reasonable number add an element of brightness to the sitting room, but when you make a florist's establishment of it, crowding

tables, mantel shelves and every available spot with flower pots, the homelike appearance is gone, and home comfort takes its departure.

A quarter of a century ago, flower or ornamental plants were kept in almost all homes throughout the country and flower lovers during recent years have mourned the loss of their plants, as they have been obliged to give up their culture, wherever the ordinary illuminating gas is used in the rooms. Gas has a very injurious effect on almost all kinds of plants, but Rubber Plants, Sanseveria and English Ivy withstand the gas better than flowering plants. We are glad to notice that during the



LANDSCAPE IN A BOWL
JAPANESE WORK

past few years since electricity has been used in residences, window gardening is again becoming popular and in country towns where they use lamps for lighting, the culture of plants has never been discontinued.

Success with the window garden is not so easy as with the outdoor plants, as they must have pure air and some sunlight, or they will fade. Success is best secured in a small conservatory or bay window, as the light is better distributed. While many use double sash, still

unless these sash are swung on hinges, it is quite apt to prevent the plant securing sufficient good, pure air.

A south window is the most desirable exposure for all plants. The next best window is to the east, while a west window is apt to give too much heat in the afternoon, and too much shade in the morning; but few flowering plants will do well in the north window, but it can be used for ferns, palms, rubber plants, sanseveria, and other foliage plants. English Ivy will also do fairly well on the north side, and most varieties of winter blooming bulbs will flower fairly well.

The dry atmosphere which usually prevails in living rooms is bad for the plants, but sprinkling them will not only remove the dust, but will open the pores of the plant and help them to stand the dry air. When grown in the open ground, dew is provided for them which helps to keep the foliage clean. This they cannot have in the house, which makes the sprinkling or syringing of the foliage particularly necessary.

All plants will grow better if the atmosphere is not too dry and a little moisture in the air will make it much more beneficial for human beings. While you may think that it is unwise to leave an open dish of water in the window, still some of our friends have placed a glass dish among the plants where it was hidden by the foliage and kept it full of water, which evaporates and is beneficial to the plants. Others keep a pan of water on the stove or on the

steam radiator in order to make the atmosphere more moist. What would be better, however, and at the same time would give an attractiveness to your window, is to provide an aquarium or globe of gold fish to be placed among the plants. Not only will the movements of the fish be attractive, but the evaporation constantly going on will purify and moisten the air.

Some persons are in the habit of using manure water on their plants, but as a rule this is objectionable, owing to the offensive smell, to its causing a growth of fungus plants or mold and to its tendency to make the soil in the pots become sour. There are many good varieties of commercial plant foods, sold by seedsmen and florists, which are far superior and more desirable in every way, and if your plants are growing so rapidly as to exhaust the nourishment in the soil, it is best to feed them by using some of these preparations.

If your plants look weak and straggly, it is quite probable that they have either been "drawn," by being kept too far away from the light, or they have had too much heat, and not sufficient fresh air. A temperature of about 70 degrees in the daytime and 55 degrees to 60 degrees at night is about right for most house plants.

Showering frequently helps to keep the foliage clean, and the plants seem to enjoy it, taking on a brighter look and fresher, more vigorous growth. Do not water your plants too frequently; give them water only when they

appear to need it, that is, when the soil is dry, and then water thoroughly so as to saturate the soil way down to the bottom of the pot. Some plants which are growing vigorously and becoming potbound, may need water twice a day, while others, of slow growth or in overly large pots, will do better if only watered once or twice a week, and Cactus, Aloes and Century Plants rarely need any water unless in bloom.

While it is advisable to have saucers under the pot to prevent drainage going onto the floor, still it is a very bad plan to keep these saucers filled with water, as the soil absorbs it, the roots of the plants become saturated and without knowing it you may actually be drowning your plant. More plants are injured by overwatering than by underwatering. Under such conditions the soil is also liable to become sour, and no plant will grow well in sour soil. If you have any plant which is now in that condition, it is best to take it out of the pot, remove the old soil, and repot in light, well-mixed earth.

Stirring the soil at least once a week in the pots will permit the air to penetrate to the roots, will keep the weeds from getting a start, and encourage more vigorous growth of the plant. Pick off all fading flowers and dead leaves as soon as they appear. Most plants will do better if they are turned once or twice a week, so as to receive the light from all sides, and prevent their becoming drawn.

In order to be successful in growing plants in the window garden, it is of the first impor-

tance to start with plants that are perfectly healthy and in good growing condition. While plants which have been grown in the open ground can be lifted in the fall and put into pots or window boxes, still as a rule you will have better success to either purchase good, thrifty plants from some florist or take cuttings from your outdoor plants during the summer, root them in sand or soil, directions for doing which will be found in another part of this book, and then they will be in good, healthy, vigorous condition for winter use.

Practically all greenhouse plants can be successfully grown in the window garden, but the following are particularly desirable: Geranium, Pelargonium, Carnation, Cyclamen, Fuchsia, Primrose, Calla, Abutilon, Heliotrope, Bouvardia, Begonia, Cineraria, Poinsettia, Mignonette, Sweet Alyssum, Roses, Lantana, Lemon Verbena, Ferns and Asparagus.

Geraniums will do well in living rooms at all seasons, and are the least expensive, most reliable and most easily managed plants, therefore especially desirable. Some varieties of Fuchsias are excellent winter bloomers, especially the *Speciosa*. They require rich soil, plenty of water and some sunshine. They are quite apt to be troubled with red spider, and mealy bug, therefore syringe them frequently on both sides of the foliage. Everyone will want some Begonias in the window garden. The foliage is beautiful even when the plants are not in bloom. The Abutilon is another excellent plant and can be grown in

tree form like an Oleander, if desired, and set out in the open ground during the summer. As it is apt to grow somewhat straggling, it is well to keep it trimmed up in good shape. *Impatiens Sultana* is another one of our best winter bloomers. There are several good varieties and they will help brighten up a window garden. It is a little particular, however, and prefers a rather cool temperature and rich, fine loam.



A PLEASANT ROOM IN THE WINTER

In speaking of house plants, many people refer only to Geraniums, Fuchsias and other greenhouse plants, but there are many of the garden annuals which will do well with house

culture, but most of them give better results, if grown from cuttings, instead of from seed. It is an easy matter to make these cuttings during the summer, and propagate only the plants of most desirable color of flowers or foliage or of the best habit of growth. One of the best for this purpose is the common *Antirrhinum*, or Snap Dragon. It is easily grown, and a splendid winter bloomer, producing flowers constantly throughout the winter. The *Petunia* also gives great satisfaction, and you will find that the single *Petunia* grows more rampantly and produces more flowers than the double varieties. It requires, however, a sunny window, and good, rich soil, and looks well when trained up on a trellis. Sweet *Alyssum* and *Mignonette* produce lots of flowers and add a pleasant fragrance. *Ageratum*, *Browallia* and *Ten Weeks Stocks* give good results, as do also either the Dwarf or Climbing *Nasturtium*. You can propagate all of these plants readily and will be surprised at the results obtained. The *Bouvardia* is one of the very best winter bloomers, but is somewhat more difficult to propagate. We have always had the best success in propagating from root cuttings.

Even a box of *Portulaca* if given sandy soil and not too much water, will make a brilliant ornament. Pansies and English Daisies are always handsome, but there are no plants on which the aphid or plant lice seem to propagate more freely and unless carefully watched, they may be badly injured by the insects before you realize it. The *Dianthus* Pinks will

flower well in the house, but the Carnations are so far superior to them, that they are scarcely worth the space. Of course, you must have some Sensitive Plants to please the children, and they are about as attractive to the older ones, who love to study their wonderful actions. As a tropical appearing plant, the Canna makes a good showing. Its large, broad leaves make a nice background for the ordinary house plants.

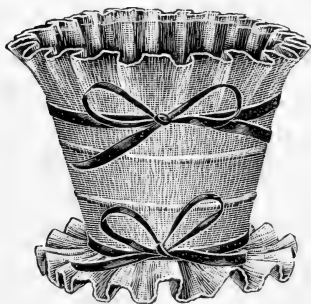
In climbing or trailing plants, you will, of course, want Manettia, Kenilworth Ivy, Maurandia, Saxafraga, Ivy Geraniums, Vinca, Passion Flower and Trailing Nasturtiums.

Another good vine for the window garden is the Coboea Scandens; it grows rapidly, blooms freely in the house, as well as in the open ground. The Bougainvillea is also an excellent shrubby climber, producing a multitude of flowers during the winter and spring.

Both the English and German Ivy are excellent plants for the window garden. The English is a slow grower, and is quite apt to be affected by scale insects, and therefore the plant should be watched carefully and the leaves sponged off occasionally. This will not only keep them free from insects, but free from dust, and they grow much better. Madeira Vine is also an excellent window climber and Tradescantia, Ivy Leaved Geraniums, and Vincas are excellent trailers. Some people succeed well with Smilax in the house, but with us it has proven to be quite delicate, as it must have a moist atmosphere to grow sat-

isfactorily. On the other hand, *Asparagus Plumosus* will stand the dry atmosphere well and furnish an abundance of delicate, feathery, bright green foliage, and there is nothing which looks more handsome when trained over the lace curtains.

We would also most highly recommend the winter blooming bulbs, such as Hyacinths, Tulips, Narcissus, Freesias, etc., which can be grown in a cool temperature and will stand a great amount of misuse. When a climbing plant is desired for shady location, we can recommend the *Solanum Jasminoides*; it seems to stand the shade well, climbs rapidly, and bears numerous large clusters of handsome flowers, does well even in the north windows. The



PAPER FLOWER POT COVER

waterproof paper flower pot covers which are sold by many florists and seedsmen, are quite showy and useful for concealing the plain or unsightly pots. Ladies can make them for their own use out of ordinary crepe paper tied with a ribbon, and they

are quite handsome until they get wet.

"What can I grow successfully in the north window?" is a common question. Ferns are the most desirable class of plants, but Rubber Plants, *Sanseveria* and Palms do well, and if

the window is so arranged that they get a little early morning or late afternoon sunshine, Callas, Fuchsias, the Orange and Lemon Trees, Vincas and Cyperus also give good satisfaction.

HANGING BASKETS AND VASES.

A nicely filled hanging basket adds greatly to the attractiveness of any window garden, and to the appearance of the porch during the summer. They are made of various materials, the ordinary baskets being of pottery ware constructed in a great variety of ornamental forms. Quite attractive baskets are also made in rustic style by covering the outside of the wooden bowl with various shapes of roots, but there are probably more of the wire hanging baskets used during recent years, than any other kind. They have the advantage of being very light in weight. In filling them it is customary to line with moss, which may be green moss from the woods if preferred, but usually the ordinary brown sphagnum moss is used, the object being simply to keep the soil from washing out. After lining, the receptacle can be filled with soil, placing a handful of charcoal, potsherds or gravel in the bottom for drainage. One advantage of the wire hanging basket is that ferns and some other plants will send their runners through this material and small plants will be formed around the outside of the basket which add considerably to its attractiveness.

There are numerous varieties of plants suitable for growing for a hanging basket. Among

the upright growing sorts we will mention small sized Palms, Dracaenas, Geraniums, Begonias, Swainsonia and Hydrangeas. For small plants to surround the same, Rex Begonias, Small Leaved Begonias, Azaleas, Centaurea Gymnocarpa, Peperomia, Lobelia, Ice-plant, Fancy Ferns, Ageratums, and variegated grasses.

The hanging basket always looks better if some trailing vines are planted around the edges and some climbers to twine up the wires with which the basket is suspended. Almost any of the small vines give good satisfaction, provided the basket is not allowed to dry out; most prominent among the desirable sorts are the Vinca, Kenilworth Ivy, Maurandia, German Ivy, Glechoma, Saxifraga, Tradescantia, Othonna, Ivy Leaved Geranium, and Cissus Discolor.

A small basket containing a large, well-branched plant of the Christmas Cactus (*Epiphyllum truncatum*) will be very showy when in full bloom at the holiday season. We have frequently found it beneficial to cover the surface of the soil with moss to prevent too rapid evaporation, and drying out of the soil. It is an error to crowd too many plants into the basket, as they are apt to become stunted and sickly.

Do not let your basket suffer from neglect, it being particularly necessary to water it frequently, as it is exposed to the air on all sides, and therefore dries out much more quickly than plants growing in pots.

The same care is necessary for vases and the same plants are suitable for them, except that as they are larger and hold a much greater quantity of soil you can use larger growing plants for the center and even such massive-leaved, tropical-appearing plants as the dwarf varieties of Cannas will look well. We consider the iron reservoir vases the most desirable for general use. The top part or earth receiver has a tube in the bottom extending down into the water reservoir, which is packed with moss or sponges, through which the water is drawn up by capillary attraction, so that the roots of the plants always have sufficient moisture and are never overwatered. The reservoir does not require refilling oftener than once in ten days or two weeks unless the weather is extremely hot and dry.

Window Boxes.—There is nothing which will add more to the attractiveness of the window garden in the winter, than a window box filled with nice, well-arranged plants, with vines growing over the edges. The main objection to having such a box is that the cool draft coming down by the window is rather hard on the plants. If, however, you have storm windows on the house, so that there is a double thickness of the glass, you will not be bothered in that way.

Many ladies prefer to grow their plants in window boxes, instead of keeping them in pots. The ordinary window box is made about six to eight inches high and of width and length to fit the window. Cleats should be placed

under the box to hold it up from the window sill and thus prevent injury to the woodwork of the window and also allow free circulation of air underneath the box. Cover the bottom of the box with a layer of charcoal about one inch deep, and then fill in the dirt. This charcoal will give drainage without permitting water to run through it. Many are construct-



ARRANGEMENT OF PORCH BOXES

ing their window boxes of galvanized iron and making them double, the inside box holding the soil, having several holes through the bottom to give drainage into the outside cover. The outside box should be one inch deeper with strips of wood across the bottom, so as to support the lining and allow for drainage.

It is an easy matter to arrange a trellis or arch over such a window box, by taking two long pieces of quarter-inch iron rod, bend them into the shape of an arch so that the ends will go down into the corner of the box and weave a smaller wire back and forth between the two.

No vine is so desirable for such a box as the *Coboea Scandens*, which yields an abundance of bright flowers throughout the season and it is always well to have some bright, ornamental-leaved plants to give brilliancy to the box, even when you have no flowers in bloom. The Maiden's Hair Fern or some other small-leaved variety of Fern or the *Asparagus Plumosus* or *Asparagus Sprengeri*, will help give an airy, light appearance to the foliage in your window box. A small wire hanging basket, or hanging basket made from a cocoanut shell or a seashell suspended by wires, filled with some small plants may be suspended from the arch over your window box, and makes a pretty ornament.

During the past few years, outdoor window boxes and porch boxes have been largely used. In some of the flats and downtown brick or stone buildings, many of these are to be seen, and they greatly improve the appearance of the building with their bright flowers and beautiful vines festooned from the boxes. While most of these boxes are painted green, black or gray, they look much nicer if covered with bark, which can be easily tacked to the woodwork. In painting the box, it is well to remember that while green is one of the most popu-

lar colors, still the vines and plants will not show up in a green box as well as in one painted some other color. If made of the right size and properly planned, such a box can be removed to the house for the winter, and will continue to look well, although it may be necessary to prune some of the plants and vines in removing them to the house.

Frosted Plants.—In growing plants in the house avoid if possible any sudden changes in temperature, as frequently a sudden chill will injure a plant, although it may not be actually frozen. Very cold nights it is best to move the plant stand back from the window or protect from drafts of cold air by lowering the curtains and protecting by putting several thicknesses of newspapers between the plants and the window. Plants on or near the floor are apt to suffer the most. When plants are actually frozen they should be thawed out very slowly in a cool, dark room. Geraniums will sometimes stand quite hard freezing if treated in this way. In the fall when the first frost comes the bedding plants may frequently be saved and continue to bloom for possibly several weeks until a harder freeze by showering them early in the morning with cold water just slightly above the freezing point. This draws the frost out of the leaves.

THE FLOWER GARDEN.

*"And this our life, exempt from public haunt,
Finds tongues in trees, books in the running brooks,
Sermons in stones, and good in everything."*

To secure the greatest possible pleasure from your flowers you should study the characteristics of each kind selected and give it such a place in the garden as is best adapted to its habit of growth. If your flower beds are to be in the front yard or in a place where the public will see them, plan to make them a part of a landscape picture. It is seldom advisable



to make flower beds in the center of a lawn; better leave a broad, open stretch of grass and make your plantings along the borders or at the back of the lawn, and they look better if planted in masses with the taller varieties at the back. Study the color effects before

planting, so as to be sure that they will harmonize. For best results remember that some plants require partial shade, while others luxuriate in the full sunshine. Refer to the chap-

ter on Landscape Gardening. Label all plants both indoors and out, being sure that you have the name right, then try to familiarize yourself not only with their names, but also their character and habits, and your enjoyment will then be doubled.

In locating your flower garden, arrange to have at least part of it to one side or back of the house near the sitting room and kitchen, so that those employed in the housework can enjoy the beauty and fragrance while attending to their household duties. You will appreciate the flowers better if you keep them near you and where you can enjoy their beauty.

In preparing a flower bed see that the ground is well drained, that the land is rich and in a mellow and friable condition. Each fall it should have a mulch of rotted manure or leaf mould, which must be spaded under deeply in the spring. Make the bed broad so that the grass roots from each side will not go beneath the flowers and rob them of the moisture.

Almost all of our common garden annuals will look well in the flower garden if well arranged and well grown. Asters, Phlox, Dianthus, Petunias, Antirrhinum, Nasturtium, Poppies, Pansies and Verbenas are the most largely grown. Of the tall growing annuals the Cosmos, double Sunflower, Nicotiana, Hollyhock, Ricinus and Cleome are among the most popular. The better way to plant these is among scattered shrubbery or beside fences, although they can be used in beds.

Of course, everyone wants some of the so-

called greenhouse plants and nothing will ever supersede Geraniums, Salvia, Heliotrope, Lantana, Tuberous Begonias and Roses. The summer blooming bulbs, Cannas, Dahlias, Gladiolus, Tuberose, etc., should be given a place.

Carpet Bedding.—While it is true that carpet bedding is now used mostly in public parks, as it requires continuous attention to keep it in trim order, and make it look well, still possibly there is no public park in your town, or you live at some distance from it, and desire to do what you can to make your home place look attractive. A mass of the flowers so arranged as to display a sheet of bright color commands admiration. While it is true that the lover of nature can see more to interest him in a single well-developed plant, than in a mass of bloom, still the majority of people think they have not time to study the separate plants, and they enjoy seeing the mass of colors artistically arranged. What is called carpet bedding is composed of low growing plants, or plants which can be kept trimmed down to a low, even height, and arranged into various fancy designs, stars, crescents, hearts, etc., and possibly one design within another, and all planted in such a way as to make a harmony of color. Plants which are desirable for carpet bedding are *Alternanthera*, Blue *Lobelia*, *Achyranthes*, *Centaurea gymnocarpa*, variegated leaf Geraniums, *Verbenas*, Sweet *Alyssum*, *Phlox Drummondii*, Blue *Heliotrope*, variegated leaved *Stevia*, etc.

If you have a good sized home place, to

which you have given some distinctive name, you may wish to have that name lettered in flowers on the lawn. Such a lettering is readily made by the use of many kinds of low-growing plants. The *Echeveria* is frequently used for this purpose, as it never grows tall and always retains its color. Ornamental foliage plants such as *Coleus*, *Centaurea*, *Altemanthera*, *Cineraria*, variegated *Stevia* and *Santolina*, or other variegated leaved plants, can be used, but they must be kept trimmed down even. This can be done either with a sharp shears, or what is better, use the fingers to pinch out the center shoots. The *Madam Saleroi Geranium* is also a good plant for this purpose. If you wish a flowering plant, the *Ageratum*, *Blue Lobelia* or *Sweet Alyssum* may be used with good effect.

If you have not plenty of time to cultivate thoroughly throughout the season, we would advise against attempting to plant your flower beds in any intricate design, as even the best design if not well executed, will fail to make a good showing.

The Wild Garden.—Persons who have large grounds sometimes become tired of the formal style of gardening and for variety it makes an attraction to have, what is frequently called, a wild garden. This is readily obtained by securing what is called "Wild Garden Seeds," which can be obtained from almost any seed store. They are not literally seeds of wild flowers, but are a mixture of a great many ordinary varieties of flower seeds, and there is much pleasure in watching the growth of un-

known plants and seeing them develop and produce blooms which are unusual or strange. Such a garden is of especial interest to anyone who is making a study of botany, as they will enjoy identifying and naming the various kinds. In some places the proprietors of summer resorts have sown this wild flower seed through the woods and in odd spots around the grounds, so that the visitors and patrons might have the pleasure of picking what they suppose to be unusual wild flowers. A well-filled wild flower garden will afford a great amount of pleasure and is well worth trying.

If the ladies only knew how much health and enjoyment they would secure from an hour or so each day spent in the garden, breathing the pure air and securing a sunbath while at work with their plants, I am sure everyone would be interested. Now you may think that I am digressing, but I want to say that if there is any one thing more beautiful than another, in a garden of flowers, that thing is a beautiful girl, with a sunbonnet on her head so capacious that you have to get right square before her, and pretty near to her, to see the glowing cheeks that are sure to be there if she is at all accustomed to garden work and walks. There can be nothing better for the health than to take sole charge of a small flower garden. The benefits derived from early rising, stirring the soil and breathing the pure morning air are shown in freshness and glow of cheek, brightness of eye, cheerfulness, vigor of mind and purity of character. The care and attention

required for the growing plants occupies the mind, to the exclusion, oftentimes, of frivolousness or waste of time.

HARDY PERENNIALS.

During the past few years the hardy herbaceous perennials have again become very popular and many persons consider them the most satisfactory of all flowers. They are of easy culture, thrive in almost any good garden soil, and grow in size and beauty year after year. People are now learning that they require less care and are more satisfactory with ordinary culture than any other class of plants. With these you can have a true "Nature's Garden" and when once planted, they are always to be depended on.

The plants may be divided and set out whenever they are dormant, either in the fall or early spring. This may be done at any time after the first hard frost, which destroys the garden's beauty. You will then want to clear up the rubbish, remove the dead plants and damaged foliage, so as to restore your garden to good condition, and have it look shipshape for the winter months. If hardy perennials are set out early in the fall, they will make considerable root growth in the fall, and very early in the spring, and are better prepared to produce a vigorous growth next season, as well as abundant flowers.

After a plant has been allowed to grow in the same spot for several years, it becomes

crowded, the roots grow old and possibly the soil around the plant becomes hard and sterile. It is therefore a good plan to dig up all the plants at least once in three to five years, being careful to preserve as much of the soil as will cling to the roots. Dig the bed up deeply, removing as much soil as appears to be necessary and putting in rich compost or well-rotted cow manure and thoroughly mixing it in. This may be done either in spring or fall and such roots as are overgrown should be divided and replanted a trifle deeper than before. In replanting consider carefully the rearrangement, placing the taller sorts in the background and grouping them artistically with the lower growing sorts in front. Plan also the associations of the various kinds as to foliage and color of flowers, so that all will harmonize. It is well also to consider the time of flowering, so as to secure a succession of bloom. Overcrowding of plants is a mistake. Consider well the size that your plants will attain when at their best, and give them plenty of room to grow. If plants are huddled closely together, they not only will not receive proper care, but they do not secure the sunlight and nourishment which they require.

Have you ever thought that almost always in nature, the wild flowers grow in groups or masses? This is a good point to copy in planting your home garden; instead of long rows of one variety, plant in clumps and you will find that it will give a glowing mass of color, similar to that seen when we wander in the woods

and come across a clump of native flowers. Most of the perennials will do better if not given too much cultivation. Do not kill the plant with kindness, but simply keep out the weeds.

Many of our most satisfactory plants belong to this class and we would not like to do without the Perennial Phlox, Garden Pinks, Foxglove, Lemon Lilies, Paeonies and other favorites.

Most of the hardy perennials are readily grown from seed and you can secure a large collection of them in this way at a much lower cost than by purchasing the roots. Some roots such as Gaillardia, Iceland Poppies, Pinks and Delphinium will bloom the first year, if the seed is started in January or February in the house. Most varieties will do much better, however, by starting the seed in an outdoor bed in July or August, transplanting them about the middle of September to their permanent place or to a bed in the garden where you can protect them during the winter with a light mulching and be ready to set them out in the spring when conditions may be more favorable. In setting them out be sure and dig the holes large and deep, have the soil loose and rich and spread out the roots carefully so that they will at once take hold of the soil.

When you receive a shipment of plants from a florist or nurseryman always unpack under cover or in a shady place, where the sun and wind will not strike the roots to dry them out. If the roots seem dry, soak in tepid water, and

should any of them be mashed or broken, cut them off just above the break with a sharp knife. Set the plants out about the same depth they were before, working the soil well around the roots, but do not let the roots come in direct contact with manure. If it is a large plant or shrub, fill the soil in around the plant so that the roots are covered and pour in water to settle the soil around them. Afterwards finish filling the hole with soil and press firmly around the plant.

HARDY SHRUBS.

There is nothing which so quickly, and for so little cost, adds so much to the beauty, cheerfulness and homelike appearance of a place as an assortment of hardy shrubs. They are permanent improvements which increase in size, value and beauty year after year.

Many of them are as decorative as any ornamental foliage plant, while others are highly useful as cut flowers, and a well-arranged planting presents an attractive appearance throughout the entire year. Shrubs are indispensable on any grounds and by setting out an assortment of them they will grow rapidly in size and add to the value of the place. They can be used in any situation—as a border to the walks and drives, as a screen for the side fences and around the house and porch.

In planting, be careful not to overcrowd, but allow sufficient room for future development, and unless an immediate effect is wanted—in

which case they may be planted closer and some of them moved when necessary—the majority of the dwarf-growing kinds may be set two to three feet apart, the tall, strong growers about five feet apart. Most varieties of shrubs may be safely transplanted in the fall, but we prefer to set them out early in the spring, as soon as the frost is out and the ground in workable condition. This gives them a chance to make some root growth before hot weather comes.

In order to make shapely specimens, shrubs should be pruned once a year and while they may be pruned during the winter we usually like summer pruning. This consists mainly of pinching off the ends of growing shoots, to regulate their growth. When an end is pinched off the side buds push forth and so instead of one long shoot there are a half dozen stockier ones, and a bushy plant instead of a thin-branched one. The early flowering sorts should not be pruned in this way until their blooming season is past. On old shrubs it is a good plan to trim out the very old branches, as the younger stems which come up from the root not only grow more vigorously, but bloom better. The plant will also do better if sufficient of the surplus growth is removed to allow free circulation of the air and sunshine.

The artistic planting of shrubs either in groups or as specimen plants adds greatly to the beauty and attractiveness of any place and to be beautiful they must be not only properly placed, but well grown.

Ornamental Fruited Shrubs.—When our summer flowering plants have all succumbed to Jack Frost and their leaves are scattered over the ground, the scenery indeed looks dull and what should we do without the evergreen trees, and some of the hardy shrubs which bear ornamental fruits? The well-known Snowberry and Coralberry, which both belong to the *Symphoricarpos* family, are well-known sorts. The last named being a wild plant on our western prairies, often called Buck Brush. Various varieties of Barberry also have bright orange red berries. The *Euonymus* and American Holly are attractive wherever the climate is not too severe for them to grow, and the large red hips of the *Rosa Rugosa* gives a pleasing effect. The climbing Bittersweet with its red berries showing through their bright yellow covering adds an attraction to the bare branches of the trees on which it climbs.

ORNAMENTAL VINES.

Nothing adds more to the homelike appearance of a place than to have a pleasant shade of vines over the porches and climbers on the trees, arbors and fences and to screen outbuildings or unsightly places. In making a home, plan for future beauty, comfort and happiness, by planting a variety of ornamental vines. They are not only beautiful in themselves, but they shield the sharp corners made in the house by the architect and add to its attractive-

ness by their charming foliage and abundance of flowers. A porch is an ideal place for training them, and as they twine around the posts and climb higher and higher, you will have the bare lines of the roof relieved by their festoons of verdure; the piazza rail will be lost to view, and the open spaces will make a frame for the contented family group sitting on the porch.

If your building is brick or stone, we would strongly recommend the *Ampelopsis Veitchii* or Boston Ivy. It clings to the wall and soon covers it with a beautiful blanket of green which in the fall is made still more attractive by the brilliant red and yellow tints. Window boxes around the house and porch may be filled with a variety of flowering plants with drooping vines festooning themselves gracefully down to the ground.

If you plant climbing roses or hardy perennial vines they make permanent improvements, adding greatly to the value of any property, and the value grows from year to year as the plants increase in size and beauty, so that instead of an expense they should be considered a paying investment.

It is the nature of most vines to twine around trees, shrubs, or other tall growing plants. They are, therefore, usually adapted to growing in the shade. In fact, the word "vine" is suggestive of a shady corner, which makes a pleasant spot in which to rest, and they have been highly regarded by human beings from the very earliest history. While it is true that most vines will grow in the shade, still the

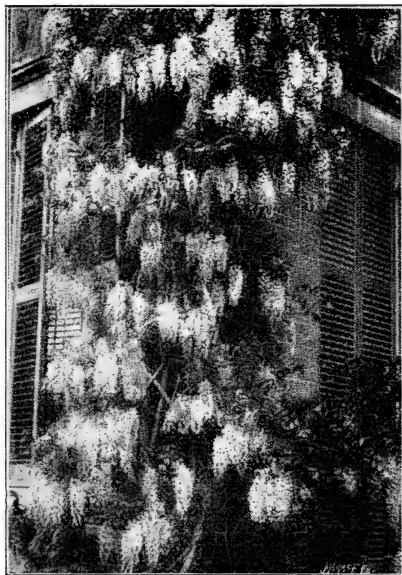
flowers are not as brilliant as they will be if they have a fair amount of sunshine.

The objection is sometimes made to vines climbing over houses or verandas, on the ground that they make the house damp, but this is not so. They are more apt to protect the house from dampness. Again it is claimed that they shut out the sunlight, but there is little excuse for that complaint as vines are under absolute control, and can be so arranged as to allow free access of light through every window.

The only objection to *Ampelopsis Veitchii* or Boston Ivy, is that it sometimes freezes out in this cold latitude. This is more apt to be the case the first winter than thereafter. The *Ampelopsis Englemanni* is another good plant, perfectly hardy, clinging well to brick or stone, and the foliage is of beautiful bright color in the fall. The variegated *Ampelopsis* has green leaves, handsomely variegated with broad bands of white, and the young leaves and stems are pink, thus giving it a very fine appearance.

The *Wistaria* shown in the accompanying illustration is one of the hardiest of vines, growing rapidly to a height of forty to fifty feet and when in bloom its flowers make a grand showing. The various kinds of *Clematis* and *Honeysuckle* are very popular and hardy and don't forget the climbing roses. There are also many good annual climbers readily grown from seed and it might be of interest to you to

look them up in the classified list in another part of this book.



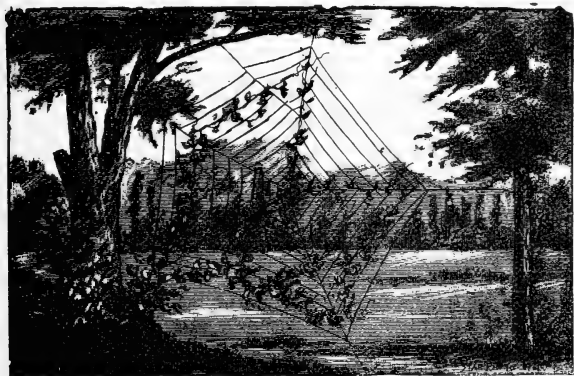
WISTARIA

If you are planting vines around a porch or foundation of a house remember that the soil is apt to be clayey, hard, and such soil is as unfit for any plants to grow in as shifty sand. Therefore before setting out any plant in such a place dig out the soil deeply and replace with loam as most vines are gross feeders and require fertility. The ground should

be well drained or sloped away from the house, as many plants are killed by allowing water to stand around the roots. On the other hand, if the house has a very wide cornice it may shelter the plants so as to keep off all rain and they will require watering frequently.

The ordinary poultry netting is frequently used for trellising Sweet Peas and other low

climbers or special trellises may be prepared in various shapes to suit the location. Try and have something different from the ordinary if possible.



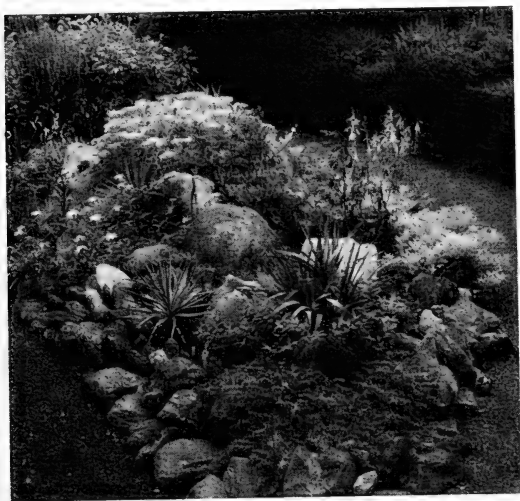
A very attractive trellis, shown by the above illustration, was constructed by "Sister Gracious," a well-known floral writer. Strings were stretched from one tree to another, and by using heavy cords it was made to look like an immense spider web. An Ivy, which was growing beside the tree, was trained over this cobweb. It was a decided success and attracted more attention than anything in the neighborhood.

Vines for the House.—For those who desire an attractive climber for the window garden we can recommend the Japanese Climbing Fern or *Lygodium Scandens*. It can be grown

even in a north window, and does well with little sunshine. The English Ivy also will stand the same kind of treatment and its dark, rich, leathery foliage makes an attractive contrast to the small, fernlike foliage of the *Lygodium*. Madeira Vines are as nice climbers for the window as they are for the porch and it is a good plan when frost comes to dig a few of the roots, cut the vine off near the base, and let them start up again in the house. The *Coboea Scandens* is an old favorite, bearing large, healthy appearing foliage, and handsome bell-shaped flowers. It is a rampant grower and usually quite satisfactory; even the common Sweet Potato makes a nice climber for the window. Some years ago the writer saw a handsome climbing plant in the window which he did not identify at once, but closer observation showed that it was simply a large sweet potato which had been hollowed out, so as to hold water, and it was upheld by cords like a hanging basket. As a rule, however, it would be better to use a small sweet potato and put it in a flower pot. Such unusual novelties add to the interest in the window garden.

ROCKERIES.

The beauty and attractiveness of a rockery is largely due to the sense of wildness or contrast with other portions of the grounds, and it is therefore best to have it in some secluded spot, so that it will have the charm of naturalness. If close to some old tree, it gives pic-



turesqueness to the rockery, but whatever you do, do not attempt to build it up as one would a wall with mathematical precision, as the very fact that it is rugged and different from its surroundings makes it attractive.

While in some places rockeries look decided-

ly unsuitable, and out of place, still on most home grounds some spot can be found where it will be decidedly decorative. Perhaps it is the open lawn, possibly in a corner, or to one side, but try and make it harmonize with the grounds if possible. Pile the rocks up in such a way as to make receptacles for plants. We have even seen rockeries formed of clinkers from a furnace which were arranged so artistically in fantastic shapes as to be really most showy and attractive.

Avoid systematic arrangement. Perhaps you can obtain some wild plants from the woods which have a natural delicacy or beauty. It will make your rockery look less conventional, by imitating natural conditions. The use of vines softens the rugged outlines of the rocks, and creeping plants, ferns and moss should harmonize well with the surroundings. If there is a natural embankment on any part of your place, why not pile the rocks up against it, tumbling them together without special arrangement, so as to make them look like part of the bank?

Many kinds of plants are suitable for growing in such places. If bright colors are wanted use Scarlet Geraniums, Verbenas, Azaleas, Lobelias and Coleus, with Achilleas, Sedums, Candytuft, Pansies and of course some creeping vines such as Saxafraga, Vinca, Wandering Jew, and Ivy. Amongst the plants which seem well adapted for growing in rocks, are the fancy leaved Geraniums, *Eulalia zebrina*, *Lobelia*, *Portulaca*, *Marguerites* and *Myosotis*,

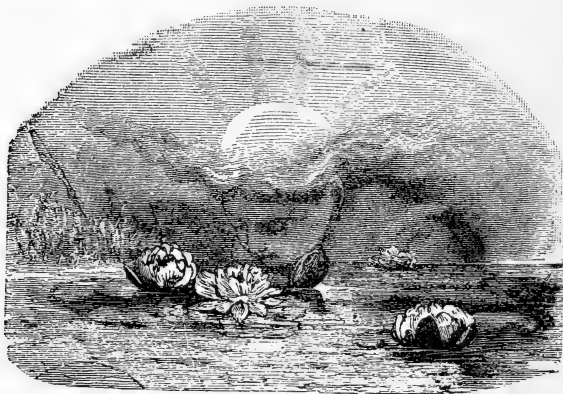
which may be interspersed with some vines such as the ordinary Hardy Myrtle, Variegated Moneywort, Nasturtium and Thunbergias. If your rockery is in a place where it has plenty of moisture, try also Caladiums, Callas, Ferns, etc. If you can arrange your rockery in a partially shaded spot where the soil will not dry out too badly, you will probably have better success. Many of the wild plants can be brought in from the fields and woods, which will look nice in the rockery, fully as well perhaps as those which you would buy of florists.

Would it not look well to make the rockery a center for a so-called "Wild Garden," in which the plants are set out or the seeds sown in an apparently careless, unsystematic manner? There are a great variety of flower plants which blend themselves well with such a natural arrangement, for instance, Mignonette, Ice Plant, Godetia, Clarkia, Sweet Alyssum, Abronia, Nigella, Scabiosa and you can obtain from the woods, Sumac, Elder, Wild Grape Vine, and numerous other plants which will add to the beauty, not forgetting some Violets, Spring Beauties and Sweet Alyssum.



AQUATIC PLANTS.

There is nothing adds more to the attractiveness of a landscape than water, no matter whether it is a lake, a river or small stream, and it is not strange that we like to construct artificial ponds, lakes and streams on our home



grounds where we are not so fortunate as to have them a part of the natural scenery. It is not always easy to construct a pond which will look natural, as in some places the soil is of such a nature that it will not hold water, but an excavation can be made and lined with a coating of cement.

If your home place is large, so that you have room for such a pond, you will find it one of the most attractive spots around your grounds, and it can be made decidedly artistic. Possibly you can arrange a fountain by laying the pipe

under the ground to some distant spring or tank of water on higher grounds, or attach it to the city water works; have the end of this pipe come up in the center of the pond, and surround it with rockwork, so as to hide it as nearly as possible.

The pond should be supplied with aquatic plants, the common white water lily, *Nymphaea Odorata*, being one of the most desirable and perfectly hardy in this country. There are also many other varieties of *Nymphaeas* and *Nelumbiums*, and by having the various colors of pink, blue and yellow, with the white, it adds to the effect. *Cabomba* and *Myriophyllum* are plants of delicate moss-like appearance, and look very attractive in the water. *Sagittarias* and other plants will add to the attractiveness. Among the semi-aquatics or plants which prefer a moist place and should therefore be planted around the margins of the pond we would specially mention *Calamus*, *Iris* and *Cyperus*, and it may be surrounded with various kinds of flowering shrubs which will be made more beautiful by the reflection in the clear water. If you like aquatics and have not space for a pond, sunken tubs can be prepared usually to the best advantage by cutting a vinegar barrel in half and sinking it down until the upper edge is about level with the turf, and put about eight or ten inches of very rich soil in the bottom. If you are in the city where it is difficult to obtain such soil, sweepings from the street will answer the purpose. Put two or three good strong roots of the water lily

well down into the soil and cover it with water to within a few inches of the top, and you will be surprised at the result. Some prefer deeper water and, for them, therefore, cut the barrel in such a way as to leave two-thirds of it for the plants and leave it projecting a foot to fifteen inches out of the ground. Surround this with a rockery. The space between the rocks being supplied with good garden soil, and many varieties of plants can be set in same. Sweet Alyssum, Verbenas, Feverfew, Ferns and Vincas grow well in such a location.

If you are so fortunate as to have a brook running through your place or a pond near the house, such a situation gives a great opportunity for the cultivation of plants which cannot be grown in an ordinary location. Many varieties of flowers only grow to perfection in ground where they have plenty of moisture. Among these are the Iris, Day Lilies and Calamus; Callas and Caladiums are also strong feeders and enjoy wet soil. You can also bring cat-tails and other bog plants from neighboring ponds and transplant them in such a way that they will show to good effect. Do not attempt any systematic manner of planting in rows or set designs, but plant in clumps in the way in which they usually grow in nature. As a rule such plants grow better in rich black soil, and if your soil is not right for them, it may be improved by working into it well decomposed cow manure to a considerable depth.

If you have a good sized pond, why not pre-

pare a floating island? You will find it quite an attraction. It is easily made by constructing a raft of small rustic sticks, securely fastened together, leaving about half an inch interstice between each stick. Over this place a layer of straw, about half an inch thick, with a thin covering of somewhat clayey mud, and better soil on top. In this soil plant a variety of water-loving plants, Parrot's Feather, Iris, Wandering Jew, and some varieties of grass or what might look better than grass, sow some wild rice in the soil, and plant a water lily or two near the edge. Such a floating island will attract much attention especially if you arrange it so no woodwork can be seen.

Most varieties of water lilies (Nymphaeas), succeed best with water 18 to 30 inches in depth. They may be planted at any time during the summer, from the middle of March or first of April until September. If the tender varieties of Nymphaeas are used it is best not to put them in before May, and we always prefer to plant them in boxes and sink the boxes so that they can be removed to a safe location in the winter. For best results it is a good plan to start the plants of these tender varieties in the house before putting out in the ponds. The *Victoria Regia* has always been considered the queen among water lilies. They are not only expensive, but require a large surface of water in order to grow them satisfactorily and the water really should be heated artificially except during the summer weather. Water lilies do not like shade, but will bloom better when exposed to the sun.

CHILDREN'S GARDENS.

We are glad to notice that gardening is being taught in many of the schools, and school gardens are becoming an important part of the teaching in Washington, D. C., Cleveland, Ohio, and many other places. There seems to be a period in the life of every boy and girl when they feel a desire to have a garden to plant and cultivate with their own hands, and it is wise to train them at that time, as cultivating plants will have an influence for good not only on their own lives, but also on all with whom they may be associated. If the love of gardening is encouraged during early life, it is apt to develop them in many ways. It trains the eye to see the beauty not only in nature, but also in the works of art, such as paintings and sculptures, which is hidden from the untrained. It develops observation, and one who really loves plants, trees, and flowers will derive more refined and lasting pleasure from the frequent changes of nature at various seasons, than those who are educated with book learning alone.

One teacher with whom we are acquainted occasionally takes her class out into the woods and they study nature instead of books. Under such circumstances, a competent teacher may, in a pleasant manner, incite a desire for the study of botany, geology, entomology and other nature studies.

The schoolhouse should be the pride of the village or neighborhood, and as long as the

yard is left bare without any attempt at growing plants it will be unattractive. It would cost very little to secure vines to run over the building and some plants to set out either close to the walls or next to the fences where they will not interfere with the children's playground. A good, enthusiastic teacher can work up an interest in this way, and the parents in most neighborhoods will be glad to donate a few plants or seeds for beautifying the grounds where their children spend such a large portion of their waking hours. We know that difficulties will be encountered in raising flowers around the school grounds, but there is nothing which is desirable that is not difficult and which does not require some labor, and we sincerely believe that the time is coming when school grounds throughout the country everywhere will be made attractive by neat lawns, handsome trees, shrubs, climbing vines, and flowering plants. None but the most forsaken communities will be destitute of them. Why not then have your school take the lead in this work and be an example which other communities will be glad to copy?

GRANDMOTHER'S GARDEN.

It is always a pleasure with us to please the old people, and nothing suits them better than an old-fashioned garden. Why not prepare such a spot on your home grounds? I am sure that the children will enjoy it just as much as the old people.

Select some quiet spot and let it be partially

secluded by planting some tall-growing shrubs like Lilacs or Syringa around it or arrange a screen of vines. Fix it up with cozy nooks and easy seats and surround it with masses of flowers. Don't put the latest novelties here, but fill it up with the old-fashioned favorites; the Marigold, Poppy and Portulaca, and Zinnia, Verbena, Canterbury Bells, Sweet Peas, Larkspur, Stocks, Asters, Bachelor's Buttons, Tiger Lilies, not forgetting, of course, the sweet little Pansies, which hold up their perfectly shaped faces to the light and will even do well under the shadow of the majestic Hollyhocks and Sunflowers; and remember to have Morning-glories along the fence, and some of the old-fashioned Cabbage Roses and Moss Roses. In some corner have a bed of Grass Pinks and Mignonettes to give fragrance to the air with a border of the old-fashioned ribbon grass and Myrtle. Such a place will become a favorite spot, and when you go into it, you will perhaps feel again the delights of the happy childhood hours, to which we all look back.

PLANTS FOR SHADY PLACES.

What plants will flourish when grown in the shade is a question almost daily asked of every florist and seedsman, and it is a very important question with hundreds of city people whose house perhaps faces the north or is so walled in by neighboring houses that the yard has but little sunlight.

Few plants will bear intense shade and in

the dense, natural woods, where the sun seldom reaches, the ground is almost bare, while where the trees are partially cleared off an abundance of plants will soon make their appearance. All the ferns prefer some shade, as do most of the climbers, which in their natural habitat climb the trunks of trees where, of course, they are somewhat shaded by the overhanging branches, but even they will bloom better if exposed to the sun at least part of the day.

One reason why plants and even grass fail to flourish in many places is that the soil has become sour so that nothing will grow in it. Take up a handful of the dirt and you will notice the sour, disagreeable odor. Sprinkle air slacked lime over such places about half an inch thick and then spade and thoroughly work it into the soil with a rake, putting just a light sprinkling of lime over the surface.

All plants need some sun for at least part of the day, but Fuchsias, Myosotis, Lily of the Valley, Violets, Pansies, and Ferns, which are natives of the shady woods, will usually succeed fairly well in the shade, but it is a good plan to plant with them some of the ornamental foliage plants, so as to add brightness even if the flower plants are not in bloom. Amongst these plants may be found the Coleus, fancy-leaved Geraniums, Caladiums, and Begonias. Some of the latter flower very nicely and the writer had a very showy bed of the tuberous rooted Begonias this season under the shade of a large apple tree.

With a little care the shady corners of our gardens that have sometimes been neglected and left to rubbish may be made the prettiest spots on the place.

The following annuals or plants usually grown from seed will do well in shady places or those partially shady:

Antirrhinum	Matricaria
Auricula	Mimulus
Begonia, Tuberous	Myosotis
Bellis	Mignonette
Canterbury Bells	Nemophila
Coreopsis	Nigella
Clarkia	Oenothera
Delphinium	Pansy
Ferns	Polyanthus
Fox Glove	Schizanthus
Fuchsia	Torenia
Gaillardia	Violet
Godetia	Wall Flower
Linum	Whitlavia
Lupinus	

In the herbaceous or hardy perennial class aside from those mentioned in the above list we would suggest the following:

Lilies	Anemone
Lily of the Valley	Aegopodium
Day Lilies	Bocconia
Hemerocallis	Glechoma
Iris	Incarvillea
Bleeding Heart	Moneywort
Dodecatheon	Bluebells
Blackberry Lily	Poppies
Spirea (Herbaceous)	Phlox
Myrtle	Aquilegia
Paeonies	Aconitum

Also the Dutch bulbs, such as Hyacinths, Tulips, Crocus, Narcissus, Jonquils, etc., Caladium and foliage Cannas.

While most varieties of shrubs do very much better in the full sunlight still Cornus Deutzia, Clethra, Berberis, Kalmia, Snowberry, Spirea, Azalea Mollis and Rhododendrons succeed well in partial shade.

THE BACK YARD.

As a rule, there is no place around the house so neglected as the back yard. It is often made the place for dumping the refuse and is decidedly unpleasant, and an eyesore to the lover of the beautiful. This should not be so, as every spot around the home should have attention and be made to do its share toward making home attractive. This is a place where you can plant flowers which perhaps have only a short season of beauty, but at that time they are desirable for decorating the house. Here you can put in your spare hours living close to nature and you need not be particular as to how your clothes look, while you are working in the back yard, where your friends are not apt to see you. It is not necessary to fill the yard with expensive exotics, as a few packets of seeds may be all that are necessary to fill the beds and furnish an abundance of flowers which will rotate in blooming so that you can enjoy new beauties every day. Even if you are going to very little expense with it, try and arrange the plants so that they will make an attractive picture and help the landscape effect. Plant clumps of some of the taller growing sorts, such as Ricinus, Sunflowers or Hollyhocks, and they will usually look much better, if planted in clumps or masses instead of trying to line them out in rows.

Even your vegetable garden can be so arranged as to make it beautiful, for what has a finer, more delicate foliage than Parsley, Carrot, and Asparagus, with Sweet Corn or Pole

Beans for a background; gourds and cucumbers climbing over the fence; tomatoes and peas trellised up, and the smaller vegetables made to take their part in the garden arrangement, not forgetting to plant some okra, egg plant and peppers for tropical effect, as well as for their garden value. The smaller growing flowers, mignonette, heliotrope, phlox, etc., can be arranged in neat beds, or continuous borders, with vines to cover division fences, out-buildings, poultry yards, etc.

We recently visited a friend who lives in a beautiful home in Baltimore, Md. In front of the residence there was a lawn with a few choice roses and ornamental trees. The back yard was separated from the front by a neat hedge of roses and before I had been there long, my friend invited me to see his flowers. When we passed this hedge, there was opened to our view one of the most beautiful spots imaginable. As the gentleman and his three sons put in practically all of their spare time with the flowers and their success with the great variety of plants was really surprising. In this case, the back yard was a more attractive place than the front, and it was here that the family really enjoyed home life, in a delightful seclusion such as is striven for in the old English homes, where they erect a high stone wall around their homes to screen out the curious eyes, and give privacy to the home grounds. Of course, it is desirable if you can do so, even in the back yard, to plant some herbaceous perennials, such as paeonies, iris, hardy phlox,

etc., and also some hardy shrubs. These can be planted from time to time and as they grow they add greatly to the beauty and value of any home place. Many persons who rent their homes, do not feel like going to any considerable expense on a rented place, still they can plant the annual flowers, and perhaps they can get the landlord to stand the expense of putting in a few fruit trees, grape vines, or hardy shrubs which will make a permanent improvement. Usually the front lawn and garden is kept nicely so as to make an attractive appearance to those who pass by, while the back yard should be prepared for the pleasure and convenience of the family or those who have occasion to use it most.

There is no good reason why the grounds around the farmers' homes cannot be beautified. It is really distressing to see the unkempt, untidy appearance of many of the door-yards, in the country, even of successful wealthy farmers. If they only realized it, a little time and money spent in fixing up the home place would add more to the value of the farm, and also to the real enjoyment of the inmates of the home, than they can possibly estimate. It does not require any great outlay of money for the gardens, nor rare and expensive plants. A rich velvet carpet of grass is much preferable and a few groups of flowering plants and some shrubbery and a few vines over the porch will make the home attractive. Do not attempt to do too much and it is well to remember that a few common

plants well cared for, so that they are of thrifty, luxuriant growth, are better than a large garden full of neglected plants, which if half overgrown with weeds, look anything but ornamental. A great variety of plants in such places are not tasteful nor desirable.

LANDSCAPE GARDENING.

Landscape gardening might well be called "picturesque gardening" as it consists of pleasing the imagination by scenes of beauty and grandeur. If there are trees now standing on your grounds it is well to plan the arrangement of the lawn, walks and drives so that they will harmonize. Making the home pleasant and attractive is what we should all strive for and the lawn should be the basis of all arrangements in the nature picture which you are preparing to make. Do not cut up the lawn with little flower beds and isolated shrubs, but keep the flowers and shrubbery well to the background, and, to our mind, groups of plants along the borders in irregular widths look much better than when laid out in straight lines or geometrical curves. Let your plants and shrubbery look more as if they grew there spontaneously and you had simply assisted them to perfect themselves. Nature with a little of your assistance will prepare a beautiful green velvet carpet for your front yard and handsome shrubbery for the border or frame of the picture.

If you have a large place and can afford it, it will be profitable to engage the services of

a professional landscape architect to plan your grounds, to advise regarding the planting and make a blue print showing not only the walks, drives, grading, etc., but also the system of planting and kinds of trees, shrubs and plants to set out in order to make it artistic.

If you have not a very large place, we would advise using your own skill and artistic ideas by becoming your own landscape architect, and here is an opportunity to display your taste and art in arrangement. Do not try to plan it all in ten minutes; if you employed a landscape architect you would expect him to take time sufficient to consider well where each tree, shrub and vine should be located, as well as to plan the walks, drive and arrangement of the lawn. You are planning permanent improvements which will be constantly increasing in value as the trees and plants grow older.

Think twice before setting out any plant or shrub, and thrice before setting out a tree. Remember that for many years, perhaps a lifetime, you will be receiving the benefit of the work done now, and you do not want to make a mistake by planting the tree or shrub in the wrong place. Perhaps it looks all right now, while of small size, but how will it look ten or fifteen years from now. Consider the future as well as the present. Leave open spaces of unbroken lawn in one or more places instead of having them broken up by small flower beds, shrubbery, etc. There is nothing which so adds to the attractiveness of any place, as a nice, open lawn, but do not neglect to have

shrubbery around the sides and background. Do not obstruct the view from the principal windows and porch, but leave openings toward the street or toward any point of particular interest. Large shrubs and trees should be planted away from the center of the lawn, so that they will not obstruct the view. In small yards, do not plant any trees which will attain great size.

Nature rarely scatters her plants and almost invariably she plants in great masses. This is a good rule to follow for producing landscape effect, as plants really look much better in this way than when planted in rows, the only exception being where single specimens are desired for special effect.

Sun Dials.—These make most attractive ornaments for the center of a formal flower garden or on a lawn and attract much attention. They may be placed on handsome cut stone pedestals, but the writer has one mounted on the stump of a white birch tree which he had dug up from the spot where it grew and placed in a suitable location where it could be examined by visitors without tramping or disturbing the flowers. It tells the time sufficiently correct so that the children can use it as a guide in going to school without its being necessary for them to run in and look at the clock. Metal sun dials can be furnished by most seedsmen or direct from the manufacturers who advertise in the floral papers.

Architectural Ornaments.—If your grounds are spacious so that you have room for them,

it will add to the attractiveness to have a rustic or plain summer house, a pergola, colonnade, peristyle, statuary or other ornament, but it requires good taste to correctly place objects



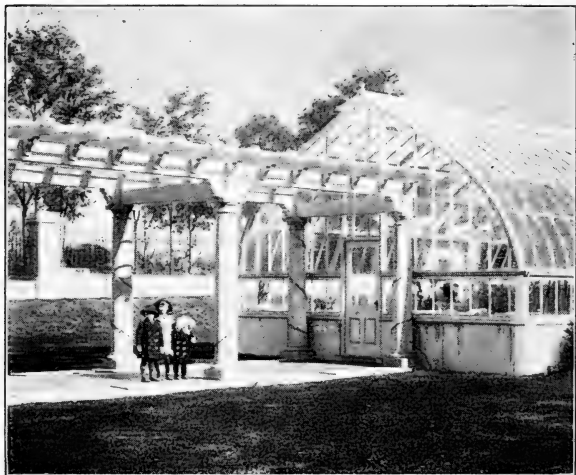
SUMMER HOUSE

so that they will accord and be in harmony with the surroundings. No matter how beautiful the object it is not ornamental if placed in an inappropriate position. Much discrimination is required in adapting it to any place. If too richly or

highly ornamented it will appear gaudy and if out of accord with its surroundings it will betray ignorance or poor taste. Therefore, whatever you do in this line, let it be well chosen and placed.

A summer-house may be made both ornamental and useful and if covered with choice vines will be decidedly attractive. Some years ago I erected a rustic summer house which was inexpensive, but useful and showy. I first secured six oak posts ten feet long and about five inches in diameter, being careful to have all the bark left on, uninjured. These were set

in position selected, about five feet apart in a circle thus making a sextagonal or six-sided house. They were sunk in the ground about thirty inches, and a band of 2x4 lumber was nailed on top of the posts to support the roof



PERGOLA ATTACHED TO GREENHOUSE

frame, which was made higher in the center, being what carpenters would call half-pitch. This made, of course, a six-sided roof, which was composed of common inch boards and all covered over with pieces of white birch wood with the bark on. For this purpose I used the large branches trimmed from a large white birch tree which had recently been pruned. They were nailed on with small ends upwards

and the large ends, which had been chopped off instead of sawed, overhanging the edge about a foot, in irregular order so that when finished the roof looked round. Seats were provided by fitting in a twelve-inch board around five sides of the building, one side of course being left open for a doorway. Seats should be about seventeen inches high, that being the most comfortable for the average person. A rough and rather open lattice work was made of crooked tree limbs and attached so as to make a back for the seats and in part fill the space above for the vines to run over. In the center of the enclosure I sank a large stump cutting the tree off squarely at the top about thirty inches above the surface of the ground and on this as a base or column I built a round table thirty-two inches in diameter. The building is covered with *Clematis Jackmani*, *Clematis Paniculata* and the old-fashioned Honeysuckle and in the summer and fall becomes a bower of beauty which is occupied more or less every day. This description of the method of construction has been given quite completely, as the building was so inexpensive that everyone can afford one, and you will really enjoy doing the work yourself and putting on the little touches of true art which will suggest themselves as the work progresses. For instance, if constructed in such a manner as to be artistic and at the same time inconspicuous, a small rustic house for the wild birds may be perched on the apex of the roof and will add attractiveness and please both the

children and the birds. Teach the children to love flowers, birds and all animate creatures and their lives will be made purer and better.

THE LAWN.

*"Thank God for grass! No other glory vies
With the refreshing glory of the grass;
Not e'en the blue of the o'erbending skies,
Nor fading splendor when the daylight dies,
Can this sweet smile of living green surpass."*

A well kept lawn is absolutely essential around any home place and its beautiful, soft, velvety turf adds a charm which cannot be surpassed. Even the humblest home may be made attractive with such surroundings, while without a good lawn the finest residence with elegantly arranged flower beds seems incomplete. Its soft, velvety green turf is restful to the eyes, quieting to the nerves and purifying to the atmosphere.

How often a home, costing several thousand dollars, is erected; and then the planning and grading of the grounds is turned over to some ignorant but pretentious laborer, who is installed to make the lawn. As a result the beauty of the place is forever marred. Here is an opportunity to display as much taste and art as in the construction of the dwelling itself; in fact, everyone has noticed how even a modest home often shines like a jewel when tastefully set in proper surroundings. Perhaps you can safely leave the building of your house to contractors, but the lawn should be prepared under your personal supervision. Nature, with a little of your assistance, will prepare a most

beautiful green velvet carpet for your front yard, soft, elegant green velvet to walk on, to sit on, or to play croquet or tennis on.

A lawn may be more quickly obtained by sodding than in any other manner, but it is expensive and unless good sod free from objectionable weeds is obtained, the results are unsatisfactory. The sod is usually cut from the roadside or some out of the way pasture, it is poor in quality and full of weeds, and when unevenly laid produces a rough surface that disfigures the lawn. It costs comparatively little to obtain a lawn by sowing seed and it is always better and more satisfactory.

A lawn that is to be permanent should be thoroughly and carefully made. See that the ground is properly graded and leveled with a view to drainage. Plan carefully for you want the work to be permanent and it cannot be easily changed after trees are planted and flower beds and walks have been laid out. When the grading is completed and all stones, roots and other rubbish are removed, plow the whole thoroughly, taking care that at least two inches of good soil will overlay the whole. In all places where possible to do so, a heavy harrow should then be applied until the surface is thoroughly fined down; a rake would of course have to take the place of the harrow on small city lawns. It not infrequently happens in the case of dooryards and plats surrounding city and suburban residences that the soil is largely composed of the earth excavated in making the foundations. This earth is entire-

ly unsuited for the growth of grass, and, where a lawn is desired, should be removed or covered to a depth of two to four inches with fine, rich earth, to insure the healthy and permanent growth of grass.

While it is true that a clay subsoil is the best for Kentucky Blue Grass, still it should have some rich surface soil to make it grow vigorously.

Lawn grass is a voracious feeder, and will not thrive and hold its beautiful dark green color and velvety appearance unless it is suitably fed, and for the lack of this one requisite we have many poor and rusty looking lawns. If the surface soil of an old lawn is not naturally rich, better apply a liberal dressing of some good lawn fertilizer. Stable manure is not only ill looking and unpleasant to handle, but it is practically impossible to distribute it evenly, the result being that one spot is over-nourished while the next is starved. There will also come up a plentiful crop of weeds from weed seeds contained in manure.

Grass seed can be sown at any time from March to October, but the best time is from March to May, or as soon as the ground can be put in proper condition. When sown at this time, if conditions are favorable, the lawn will be ready for mowing in sixty days or less. It is well to sow early as possible, or as soon as the land is in condition to receive it, in order that the young plants may become sufficiently well established to withstand the often dry and hot summer months. Another advantage of

very early spring planting is that it enables the grass to get ahead of the annual weeds, which are not usually troublesome before midsummer. We do not advise sowing during the hot summer months as the seed is liable to dry up and die after the sprout starts, but before the roots are formed. Lawns are very often sown during the early fall months (September being the best), with excellent results.

Throughout the central and northern states, there is nothing equal to Kentucky Blue Grass, sometimes called June Grass. It makes a dense, close turf, standing tramping well, and quickly covers the ground. It is difficult to obtain a quick sod with Blue Grass alone and therefore is advisable to sow a mixture of grasses for best results. One author says: "He who makes two blades of grass grow where only one grew before, would do more essential service to his countrymen than a whole race of politicians." This is accomplished with lawn mixtures, by learning that each variety of grass requires certain kinds of plant food, and that what Blue Grass, for instance, discards in the soil, is taken up and assimilated by Meadow Fescue, Sweet Vernal and other varieties which grow and beautify the lawn without in any way interfering with each other. Some kinds are more luxuriant in the spring, others in the summer and others in the autumn, and a proper combination of these various sorts is required to create and maintain a perfect carpet-like lawn at all seasons. It is therefore advisable to purchase seed from

some reliable seed dealer who can supply mixtures suitable for your soil and location. Rhode Island Bentgrass, Creeping Bentgrass, Redtop and White Clover all do well in mixtures with Kentucky Blue Grass, making a close, compact sward. The Canadian Blue Grass is often used on terraces and embankments but it is not as desirable as the Kentucky Blue Grass for general use on lawns. Wood Meadow grass is used largely for sowing in shady places but it is rather expensive. Sheeps Fescue also does well in the shade.

When sowing the seed, select a day when there is no wind, and sow broadcast by hand. Do not spare seed if you want a compact sod, for you must bear in mind that only one little grass blade will show at first, and they must be very close together to make an early sod. Rake lightly with sharp toothed rake and press down surface smoothly with a roller if one is obtainable. Watering thoroughly will help to settle the seed in place and also assist in covering it with soil.

One pound of Blue Grass or Lawn grass is sufficient for 300 to 400 square feet or about 100 pounds to the acre for new lawns, or one-half this quantity for refreshing an old one. Sow very thickly if you desire a compact, vigorous growing sod which will make an immediate showing and subdue the weeds. Remember that "Nature abhors a vacuum" and weeds will spring up in places not occupied by grass. If White Clover is used, very little of the seed is required, usually not over two

to three pounds per acre. Many persons sow oats, rye or wheat with lawn grass seed as a "nurse crop," thinking that it shades and protects the grass. We always discourage this theory, believing that it tends to choke out and injure the grass and make tufts on the lawn. It is advisable only when sown with grass seed during very hot, dry weather. When the grass has made a good start begin cutting it frequently with a lawn mower, cutting it about two inches from the ground.

It is quite difficult to obtain a good lawn on soil which is very sandy, as Blue Grass and most other kinds of grass do better on a rather stiff, clayey soil. It will be best in such a place to haul in some good soil or clay soil, as a top dressing for your lawn, but when this is impossible, it is sometimes necessary to select a plant which grows well on sand to take the place of grass, and the *Achillea Millifolium* has been sometimes used for this purpose. It has fine handsome foliage, is of low growth, and fine color. White Clover will also do well with it, but it must have at least a little good soil mixed with the sand.

In places where the shade was so extremely dense as to prevent the growing of any kind of grass we have seen very effective lawns made of the common green Myrtle.

In the southern states their dependence for lawns is Bermuda grass and in Southern California where grass does not do well without

a great amount of watering, one of the prettiest plants to use for a lawn is *Lippia Repens*. It makes an excellent substitute for lawn grass, growing only two or three inches high, covering the ground with a dense mat of green foliage and pretty little flowers. It is not hardy, however, and will not stand freezing weather. It grows well in sand and apparently it does not matter whether it has any moisture or not, as it goes right on growing for many months without rain.

CEMETERIES.

From the earliest ages in history until the present day among all civilized nations the burial places of the dead have been given much care and attention and it is only natural that we should wish to beautify the last resting spots of our dear friends and relatives. Expensive monuments are erected and pilgrimages are taken to visit the graves of great men. Decoration Day or Memorial Day as it is sometimes called, is now observed in all parts of this country and it is a beautiful custom to lay a wreath of flowers on the grave of our loved ones, but it is still more appropriate to beautify the surroundings by permanent planting of shrubs, roses and herbaceous plants or by setting out some of the handsome foliaged or blooming varieties of greenhouse plants.

It is a pleasure to pay these attentions to our friends' graves, as they are dictated by

the highest and purest feelings of affection of which the human heart is capable. When we visit the cemetery alone and quietly meditate there, thoughts will crowd our minds, more pure and holy apparently than we ever experience while in the rush of our busy daily lives.

There are many cemeteries in all parts of the country which are famous for their beauty and arrangement, and they show the artistic work of a landscape architect. There is much, however, that remains to be done in most communities, and it is some consolation to mourning friends, if they can visit the last resting places of their loved ones, and make the spot so attractive that they will delight to come there to meditate on the past.

It is, of course, nice to have plenty of trees scattered through the cemetery, but it should not look like a forest. If destitute of trees, the ground should be treated as for park or lawn with good, clean, well kept roads and paths and all the ground grassed over except such spots as are prepared for flower beds. Many persons ask for plants for the cemetery which will stand neglect, but there are no plants but what will be far better and more attractive if properly cultivated. "Everything worth doing at all is worth doing well," and while shrubs, roses and most herbaceous plants will succeed fairly well with little attention, still the ground should be loosened around the roots and the grass which grows close up to them should be pulled at least once a year so

that the plants can absorb sufficient moisture to keep them growing vigorously.

Do not, however, set out so many plants as to make the lot look "cluttered up." We frequently see such a condition and it is lamentable, when by the exercise of a little forethought and planning, the place might have been made beautiful without any more labor and with really less expense.

It is well to remember in selecting plants for cemetery planting to take those which are of strong vitality, which will stand unfavorable conditions as well as lack of water and cultivation. It is well to remember, however, that it pays to give all plants proper cultivation and they will do so much better, and be so much more beautiful that you will feel well repaid for your extra trouble. Heliotrope, Lantana, Geraniums, Ageratum and most varieties of bedding plants will do well in such a location, but it is a good plan to set out some hardy perennials and shrubs which will not need to be replanted every year. Prominent among these may be mentioned the Achillea Alba, Anemones, Day Lily, Lemon Lily, Iris, Paeonies, Astilbe Japonica, or herbaceous growing Spirea, Hardy Phlox, Yucca, Bleeding Hearts and hardy garden pinks. Of course all kinds of roses are desirable, particularly the Moss Roses, which seem to be well adapted to cemetery planting. The Rosa Rugosa and Sweet Briar Rose, are nice for such a place, and the various kinds of Memorial Roses, such as Wichuriana, Universal Favorite, and

Manda's Triumph, are elegant for trailing over the ground, their foliage being almost everlasting, and in some locations keeping green all winter.

One of the best shrubs for cemetery planting is the *Deutzia*. It is an early bloomer, having long, slender branches and producing a profusion of flowers. The various varieties of *Weigelia* are also desirable, as they continue a longer time in bloom than most of the hardy shrubs. All varieties of *Spiraea* look well and nothing makes a finer appearance than the *Hydrangea Paniculata Grandiflora*. All of these plants are perfectly hardy in this climate. While the last named produces only one crop of flowers, still they remain on the plant and look well until cold weather, ranging through the various shades of white, green, pink and brown. The new *Hydrangea Arborescens* is also very desirable on account of its great number of flowers, although the individual panicles of bloom are not as large. The *Tartarian* or *Bush Honeysuckle* is also a desirable shrub for the summer, and *Lilies* will do well if planted in a good rich soil, where the ground is well drained. We especially recommend for this purpose, the *Lilium Candidum*, and *Lilium Speciosum Rubrum*, and don't forget the *Lily of the Valley*. It blooms early in the season, is pure white, of exquisite fragrance, and charming grace. The foliage is also ornamental, even when the plants are not in flower.

One of the nicest old-fashioned plants for the cemetery is the common *Green Myrtle*

or Vinca Minor. It is hardy, easily grown, and if planted over a grave will soon cover the mound with its dark green foliage and bright blue flowers. It will soon drive out weeds, grass and other plants and make a beautiful carpet, in fact, we have seen entire lawns made of Myrtle, in places where it was so shady that grass did not do well. It is also an excellent plant for trailing over rock-work, and will grow well in poor clayey soil, where nothing else seems to thrive.

In some places reservoir vases are used in place of Tombstones. These are made of iron with a reservoir to hold water which feeds the plants as they need it, and still they are never over-watered. These reservoirs will hold sufficient water to supply the plants for from ten days to two weeks, according to the weather. They are usually painted pure white, with what is known as flat paint, which does not turn yellow. The ordinary lead and oil paints turn yellow so quickly that they soon become unsightly. It is an easy matter to attach a name plate, giving the name and dates of birth and death to these vases, and they then answer the double purpose. It costs but little to fill them with flowering plants and vines, and they make attractive ornaments throughout the season.

Decoration Day was instituted many years ago and the day selected was supposed to be the day when most varieties of flowers would be in bloom. We always like to have the cemetery look nice on that day, and it is well to

plant there some flowers which will add their beauty at that time, among these we may mention Lemon Lily, Orange Lily, Snow Balls, Lilacs, Bridal Wreath, Deutzias and Iris.

INSECTS AND PLANT DISEASES.

Almost all plants are more or less subject to injury by insects and sometimes they are a source of great annoyance. It is always well to be on the outlook for them and prepared in advance to fight them, for if they are once allowed to gain a foothold it will require double the labor to get rid of them. When plants are in vigorous, healthy, growing condition they are not so likely to be affected as a sickly plant. In order to guard against the ravages of insects it is well to occasionally take your plants out to some place where you can thoroughly spray or wash them and on most plants it is well to use soap suds, that being made from whaleoil or tobacco soap being especially desirable, as it also kills the insects on them, but in all cases, plants should be thoroughly rinsed in clear water afterwards.



THREE STAGES IN APHIS LIFE

The most common of all insects is the Aphis, also called Green Fly or Plant Lice, and as

they multiply with wonderful rapidity they soon become a most destructive pest unless they are kept in check. If only one plant or so is affected cover with a cone of newspaper and fumigate by puffing tobacco smoke under it. Or it may be more convenient to spray the plants thoroughly with a tea made by steeping tobacco or tobacco stems in water or spray with the tobacco soap mentioned above. It usually requires two or three applications to get rid of them, but the tobacco preparations will do it. We have used the Sulpho-Tobacco Soap for many years past with excellent results on house plants as well as in the greenhouse and even on large trees to kill the Aphis. It can be obtained from almost any seedsman or florist. Tobacco will kill anything except a man, you know.

The Red Spider also frequently becomes quite injurious on roses and other plants during the winter. This little pest increases most rapidly in a hot, dry atmosphere, and the best way to destroy it is to spray the plants frequently with water, being careful that the underside of the leaves is thoroughly wet. They are of very small size and appear like little red dots and are usually on the underside of the leaves.

The Mealy Bug is another patience-trying insect which usually infests the plant at the axis of the leaves and is particularly objectionable on Fuchsias and Bouvardias. They usually appear in masses and look like a speck of cornmeal. Tobacco water has little effect on

them, but kerosene emulsion or diluted alcohol applied with an atomizer will do the work. If but few plants are affected, however, you will find it easier to brush them off with an old tooth brush or piece of soft wood.

The Scaly Bug is the worst insect which we have on Palms and many other plants of a woody nature. They are sometimes called "shield lice," owing to the hard, shield-like scale which covers their body. It is best to keep the plants free from them by rubbing them off wherever seen, and of course if the palm leaves and stems are washed, occasionally, with a brush, it will usually remove all the scale.

There are many kinds of scale which injure shade trees and hardy shrubs, especially Lilacs. Scrubbing the bark with strong, soapy water or spraying with Horicum or some other preparation of lime, sulphur and salt will usually destroy them.

The Black Fly is particularly annoying on Chrysanthemums and some other plants. They are black or very dark brown in color and destroy the flower bud and tender foliage. The tobacco tea or tobacco soap will usually kill them. Tobacco dust sprinkled over the leaves will help to drive them away.

Thrips are small, light colored insects which are particularly destructive to Carnations and Chrysanthemums, as they get into the flowers as they begin to expand and suck the substance out of the petals. They are hard to kill, but fumigating strongly with tobacco or

spraying with Nicofume solution usually kills them.

The Black Beetle or Aster Bug is very destructive to Asters, eating the flowers very rapidly. We have had good success in using Slugshot to dust over the plants, but on a small flower bed it is an easy matter to knock the bugs off into a pan containing a little kerosene. The best time to do this is in the early morning when the bugs are rather sluggish.

Rose Slugs are small green worms which feed on the rose leaves and buds. They will usually be discovered on the underside of the leaves frequently drawing two leaves together, with a spider-like web. Syringing with tobacco soap, or dusting the plant with powdered hellebore will usually kill them, or go over the plants and remove by hand.

Worms in the soil with potted plants may be destroyed by thoroughly soaking the soil with lime water. This is prepared by slacking a piece of lime in water. After slacked stir well and let settle; then use the clear water to pour around the plants.

Hot water is a clean, safe and effective means of destroying green fly and other insects on pot plants. To the amateur, whose stock of plants might be small, or who might not have accommodations for fumigating, it would be found a convenient remedy.

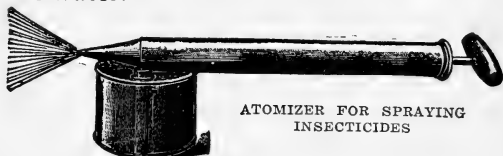
It will doubtless startle many ladies to think of dipping a flower plant in hot water, in order to kill the insects. Of course, we do

not mean boiling water, but water up to a temperature of 130 to 150 degrees, or as hot as you can hold your hand in for two or three seconds. There is a margin of many degrees between the lowest temperature that will destroy this insect and the highest that a plant will stand with impunity. The plants should be plunged into and withdrawn from the water instantaneously. The smaller body and more delicate skin of the insect is acted upon more quickly than that of the plant. Should anyone be afraid to employ the remedy, let her, if she has several plants affected, try it on one first, and the next day, when she sees it has suffered no injury, she will have no misgivings about treating the rest in the same way. Hot water is also a good means of killing worms and tiny insects, and good results are frequently secured by pouring water which has been heated to nearly the boiling point, in the soil around the plant. After this treatment, roses usually start out as vigorously as if they had been freshly fertilized.

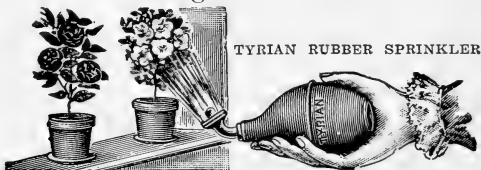
Roses and some other plants are subject to fungous diseases sometimes known as "black spot," "rust," "blight," and "mildew." It usually starts from unfavorable changes in temperature or atmospheric conditions which affect the tender foliage. The mildew can usually be stopped by dusting with sulphur. Bordeaux mixture, which is used largely by fruit growers for spraying apple trees, etc., is the most reliable fungicide. The usual formula is one pound copper sulphate, one pound fresh

lime and twelve gallons of water. Spray thoroughly with this mixture.

Ants are sometimes quite troublesome and they may be killed or driven away by sprinkling powdered sugar and borax mixed in equal proportions in places where they frequent; or sprinkle black or red pepper in their hills. Another good plan is to fill a sponge with sweetened water and place where the ants are numerous. When well filled with ants scald it in hot water.



In spraying insecticides it is well to have some good atomizer or sprinkler and there are hundreds of excellent devices. The Tyrian and Scolley Rubber Sprinklers are excellent for washing the foliage as well as distributing insecticides and fungicides. There are many



kinds of atomizers, most of them operated on a principle similar to our illustration, which throw a very fine spray, and also the larger compressed air or other types of sprayers desirable for trees or field use.

WEEDS.

The usual definition of a weed is a "plant out of place." Another is "any useless plant," still another, "any plant whose use has not yet been discovered." All plants are of some use in this world, and are put here for some wise purpose, though possibly we have not learned what that purpose is. Many plants which have beautiful flowers to us are detested in their native country or in some country in which they have become acclimated. The beautiful Lantana is a bad pest in some parts of Australia; the daisy, which is such a pest in the eastern states, the ladies here cultivate with care, and they are worn as corsage bouquets. The Golden Rod, which is the nuisance of our western prairie lands, is cultivated as a choice flower in some parts of Europe. The farmer usually wants not more than three stalks of corn to grow in each hill, and if he finds four or five stalks in the hill, he will naturally pluck out one or two of them, as in that case, they are "weeds," interfering with the crop. Nothing is more highly valued than a nice blue grass lawn, but grass is one of the worst pests that the onion grower has to contend with, and it is also very objectionable in any flower garden or strawberry bed; the young plants of raspberry and blackberry, which come between the roots may be considered weeds, as they are not wanted there and must be cultivated out.

Weeds are troublesome everywhere but if the land is kept well cultivated one season there is but little trouble with them the next.

If the annual sorts are once pulled out or hoed off that ends them, they are gone forever. The perennial sorts are more persistent and such kinds as wild morning-glory and Canada thistle will require hoeing frequently. Cut them off below the surface of the ground as fast as they come up and if you keep them from "breathing" they will soon perish. You can destroy morning-glories in one year if they are attended to promptly, but you cannot kill them off in ten years by simply occasionally hoeing them out.

In starting a flower garden begin with "a clean record." Have the soil loose and well raked and begin your cultivating before the weeds make a showing. It is much easier to kill them off while they are tiny seedlings. Do not let them get a firm hold of the ground. Work is the price of success and the cultivating and hoeing which you do to destroy weeds will also put the soil in good shape for the growing crop.

Dandelions, plantain and other weeds are quite objectionable in the lawn. They can be eradicated by cutting off with a sharp knife just below the crown or by extracting the root with a dandelion puller. Sulphate of iron dissolved in water and sprinkled over the lawn two or three times during the season will kill the weeds and not injure the grass. Care should be exercised to not get it on cement or stone walks, as it will stain them.

CUT FLOWERS.

The artistic arrangement of flowers in a decorative way really should be classed among the fine arts as there are many persons who always make a botch of it, no matter if they have the choicest materials to work with. Any one, however, who really likes flowers and enjoys working with them, can soon become an expert by giving careful attention and study. Consider well the grouping of colors, so as to produce an artistic effect. If there is an inharmonious blending of colors, the appearance of the finished work is as hideous as that of a child daubing in the paint boxes trying to paint a picture. While the lifetime of the flowers is short, being only a few days at most, and usually decorations are for but a few hours, still it pays well to know how to arrange them properly and to the best advantage. Do not try to use too many flowers or to mix colors, but be sure to have plenty of "greenery" as a background. You would not want a landscape picture hanging on your wall which was all a blaze of color without a subdued background of sky or of green sward, which would be restful to the eye. Why should you, then, want a solid mass of bright flowers in the bouquet or table decoration? Consider well the distances at which flowers are to be viewed. A table bouquet of small, delicate flowers and light airy foliage may be beautiful in its place, but it would not look as well on a pulpit or

on the speaker's table in a large hall, as one made of larger, bolder flowers, which would be more showy when seen from a distance, and one of the latter kind of bouquets would not be so desirable for the table. Sometimes distance does lend enchantment to the view.

Some people seem to be naturally adept at bouquet making and flower work. They will arrange them quickly and with careless ease in the most perfect manner, while others given the same material will in the end have a stiff unnatural looking bunch which is quite distressing. Not only must one have a good eye for colors, but knowledge of the best manner of arrangement. Sweet Peas should not be used with any other flower in bouquet making. They produce an effect by themselves which is superb, and putting other flowers with them only detracts from their appearance. Do not crowd Sweet Peas together. Cut them with as long stems as possible and arrange them so that they will droop loosely in careless beauty. With all cut flower work use plenty of white to combine the color of the other flowers. For the mantel or wall, select some tall growing flower like *Gladiolus*, and you will find that they show up better with good background. If Roses are used for such purpose, put them in a tall vase and leave as long stems on the roses as possible. In mixed bouquets even vivid yellow flowers are sometimes of great value in toning up the bunch even though they may not be particularly attractive by themselves. Yellow and white should also be used

in dark corners of the room and you will find that they will brighten and give a touch of sunshine to the place.

Study simplicity of arrangement in your vases. The old-fashioned formal bouquets are out of date and seldom seen. With most flowers it is desirable to keep the different sorts together with simply a little airy green foliage or some small flowered plant, like Baby's Breath (*Gypsophilla*), instead of mixing all kinds of flowers together in the vase. Roses, however, are one flower which require no embellishment. A vase containing a dozen or two long-stemmed roses will look much better with their own foliage than with any other.

For table decorations, either have a center piece of flowers or a nice vase, and in case of banquet or party, always scatter a few fern fronds around the table with a carnation or other flower beside each plate, which can be used as a boutonniere. A center piece can be easily arranged with an oval wreath filled with sphagnum moss first and covered with ferns or some other green foliage. The flowers can then be wired on toothpicks, and stuck into the moss so that they will stand well above the foliage. In some cases we like to use small ferns in pots and simply sink the pots in the moss. In this way the same plants can be used many times and always look well, though it is, of course, necessary to sink the pots out of sight and have some green to cover them. At various seasons of the year, this center piece can be made of the flowers at that

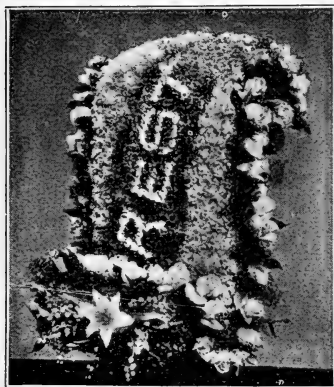
time most plentiful. Roses and Carnations are, of course, the standbys for all classes of flower work, but during the winter Hyacinths and Narcissus of various colors should be used and show up well. About Easter time the center piece can be filled with Easter Lilies interspersed with Ferns, or Lily of the Valley with red or pink roses. In the early spring, Tulips will make a beautiful table decoration. Throughout the summer the various flowers will have their place, until late in the summer when the Asters come in bloom and nothing will surpass them. During October and November, nothing seems to do so well as Chrysanthemums and the Bouvardias when obtainable always help the decorations in the winter.



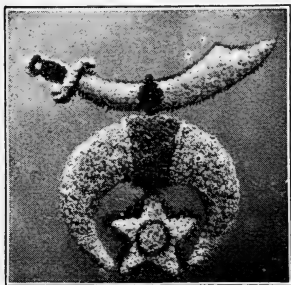
WREATH ON BASE

Wire designs are made in almost every imaginable shape for funerals and weddings. They are usually lined with tinfoil to retain the moss with which the frame should be packed. Brown Sphagnum moss is ordinarily used for this purpose as it is cheap and holds the moisture well. It should be covered with Fern fronds, smilax

or some other green foliage to hide the brown moss and it is then ready for the flowers.



SCROLL OF FLOWERS

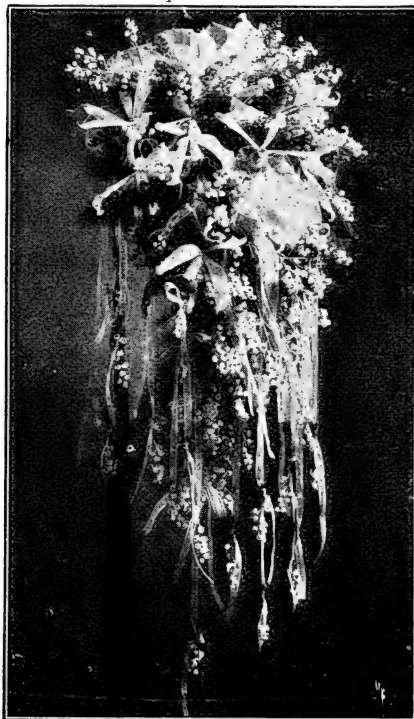


MYSTIC SHRINE

In order to insert the stems of the flowers easily in the moss it is well to attach them to wooden toothpicks by winding them on with wires. This also will help to keep them upright and solid in the design so that they will not shake out of place. Do not crowd the flowers in too closely, as they will make a better showing if they stand separately. Of course where you wish to put lettering on a design it is necessary to have the flowers close together, forming a solid surface of one color. The accom-

panying illustrations show some attractive floral work. The Mystic Shrine design shows the solid manner of filling which is necessary in order to obtain the color effect.

The ladies are always interested in weddings and on such an occasion the house or church should always be properly decorated. Various designs are suspended over the couple, such as a bell, four-leaf clover, bow and arrow, heart, horseshoe, hook and eye, etc. The bride's bouquet is often arranged in what



is called a shower bouquet with small rosebuds or stems of Lily of the Valley with some fine green foliage suspended by small white ribbons as shown in illustration.

To secure best results and make flowers keep and hold their beauty the longest time it is well to cut them before they fully develop. We al-

BRIDE'S SHOWER BOUQUET

ways prefer to cut flowers either toward evening or very early in the morning before the sun is bright and by putting them into water at once in a cool place, they will take up sufficient of the water through their stems to keep them fresh.

When in a vase in the house, it is much more enjoyable to see the petals unfold and develop into their perfection of beauty than to have them fully developed at first, and you can watch only the process of fading. Some flowers, such as the *Gladiolus*, seem to open fully as well in water and last much longer than in the open ground and thus a prolonged term of beauty is secured. Therefore, cut the spikes of *Gladiolus* when the first flower buds begin to unfold and before those higher up on the spikes have expanded. If it is intended to ship the flowers, it is also much better to pick them when they are young, as they can be handled then with little chance of injury, and will arrive at their destination in a fresh condition. With *Paeonies* which have a somewhat short season, we usually cut a great many flowers, wrap each flower with a paper to keep them from expanding, and put them away in a cool, dark place to be brought out to the light later, when most of their companions are withered and gone.

To keep flowers fresh, recut the stems occasionally with a sharp knife, slanting, so as to open up the absorbing stem pores. We have sometimes found that when flowers begin to fade, we can freshen them by dipping the tip

end of the stems in hot water for a minute or two. They revive quite quickly and keep fairly well thereafter. It is stated that cut flowers will keep better in warm weather if a few twigs of cedar are put into the vase with the water. Others advise a pinch of soda or salt peter in the water, or formaldehyde, alcohol or salicylic acid.

It is really surprising to one uninitiated to know of the immense quantities of cut flowers that are sold in all large cities. The number is almost beyond belief and thousands of persons make their livelihood by growing the various classes of flowers. This is true not only in this country but around the large cities of Europe, Paris being probably the greatest retail cut flower mart in all the world. It is said that during the season of 1909 there were sold there Roses to the value of 1,500,000 francs, or \$300,000.00. Carnations to the amount of 2,300,000 francs and Violets 5,000,000 francs, not to mention countless millions of Hyacinths, Narcissus and other flowers.

The town of Ollioules, in Southern France, is the greatest shipping point for flowers, there being more than 200,000 individual shipments there last season to Paris, England and Germany, and they have a special cut flower train so as to secure quick service.

One of the pleasures of flower culture is in being able to give away a few flowers or plants or seeds here and there, and the true flower lover is often compelled to admit that it is more pleasurable to give than to receive.

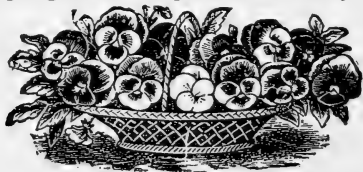
The main effort of all plant life is to produce seed and the flowers should be removed before they begin to wither or the plant will soon cease to produce blooms and the strength will go to seed. This is especially true of Sweet Peas. Give flowers to your friends and to the sick; also send them to schools and churches.

WOMEN FLORISTS.

Some ladies make considerable pin money from selling flowers and it really proves a desirable occupation. In some cases they have started by selling their surplus flowers to the local florists. They have found it profitable and increased their plant until finally they were induced to put up greenhouses so as to supply the demand. While we would not want to give out the advice promiscuously to ladies to adopt flower growing as a livelihood, as there are many who start at it enthusiastically, but soon lose their interest when they find that there is so much hard, dirty work about it, still it is well to remember that you can secure some profit from the growing of flowers, and also have all the pleasure of a nice flower garden that you would have if it were simply for your own use.

We know many ladies who have made a decided success as florists, and some have good sized greenhouse establishments, while others have devoted their attention to cut flower stores and seem to succeed just as well as the men. There is much about the florist's work which is cheery and inspiring, and it is very

pleasant indeed to propagate the various kinds of plants and see them grow, come to perfection and bloom under one's care. In starting such an establishment it is well to begin with the outdoor flowers, and purchase the various plants and seeds which you may need in the spring. During the summer build your greenhouses and in the fall you will have plants ready to take in out of your own garden and be able to stock it in that way at a much lower cost, than if you were obliged to purchase all the plants needed. The florist business is more pleasant than teaching school, stenography, clerking or many other kinds of work, which usually are done by women, and if properly handled, more can be made out of it. In one small town, not far from this city where there was no greenhouse establishment, several ladies clubbed together and put up a greenhouse and devoted considerable time to its care. They were all busy, however, with their own affairs and as it happened none of them could spare sufficient time to give it close attention, and they, therefore, engaged a florist to conduct the greenhouses for them under their direction. It has proved to be, we believe, quite profitable, and they are not only supplying the home demand for flowers, but are also shipping their surplus to the city.



SWEET SCENTED FLOWERS.

While the color, shape and quality of flowers appeals to everyone, still there is perhaps no quality which flowers possess which recommends them more to our notice than their perfume. Some of the most beautiful flowers have no odor; they are able to attract insects by their bright colors; then there are others which are comparatively insignificant in size, shape and color, but have a strong, delightful odor, such as the night blooming Jasmine, which sends out its perfume only in the evening and thus attracts the nocturnal insects. With most flowers the fragrance is delightful, but there are a few, however, like the Cleome and Stapelia in which the odor is disagreeable and even repulsive. Some plants have quite a fragrance to the leaves, but in most plants the fragrance is confined to the flower.

One of the most pleasing fragrant leaf plants is the Lemon Verbena. Its odor is grateful and refreshing, not only when the leaves are mixed in with a bouquet, but also in the garden where it gives out its fragrance at all times. It is said that the odor of the Lemon Verbena and some other fragrant plants is objectionable to the ordinary house flies, and by putting a plant of it or the cut sprays from the plant in the window it will help to keep away these troublesome pests. There are many varieties of Geraniums which have fragrant leaves, particularly the rose, nutmeg and peppermint scented sorts.

Sweet odors quiet the nerves and are so refreshing that it is no wonder that the plants which possess them become favorites with the American ladies. Some ladies like to put the leaves in the tea pot as it gives a fragrance and fine flavor to even the more common grades of tea. Some chemists have claimed that the perfume exhaled from flowers has a positively beneficial influence, as it assists in converting oxygen into ozone and in some cases it has been proven that fragrant flowers really act as a disinfectant.

In a garden of fragrant flowers the Tuberose will take a prominent place and of course you will want various kinds of Roses, Carnations, Violets and the old fashioned Grass Pinks and Lavender. The following annuals which are easily grown from seed are quite fragrant:

Abronia	Mathiola	Stocks
Alyssum	Mignonette	Sweet Peas
Asperula	Musk Plant	Sweet Rocket
Cleome	Nicotiana Affinis	Sweet Sultan
Dianthus	Pinks	Sweet William
Four O'clock	Petunia	Wallflower
Heliotrope	Scabiosa	

Extracting Perfume From Flowers.—In Roumelia a large acreage is devoted to growing Roses from which to extract the perfume. This is done by means of distillation which begins about the middle of May and continues during the principal blooming season which lasts for about four weeks. The flowers are gathered before sunrise and put into the still at once. The still is a copper vessel or boiler, known as the alembic, which is round at the base and becomes narrower toward

the top on which is fitted a dome or neck, so that when the contents of the vessel begin to boil the steam generated is carried into the condensing pipe and run off through a side pipe to the vat. On top of this vat of condensed water, the rose oil or so called Attar of Roses, floats, and it requires about 3000 lbs. of rose flowers to produce one pound of the Attar. The variety of roses most used is the Provence or Cabbage Rose (*Rosa Centifolia*.) In the south of France, another system of obtaining the Attar is adopted. There they spread very thin grease, say a butter made of a mixture of lard and beef suet, upon a broad flat surface, and upon this sprinkle the rose petals or the petals of any other sweet scented flowers and cover it up in such a manner as to exclude the air. In a few hours this butter will absorb the odor from the flowers and become itself fragrant. This is called the infleurance process. The success of the process depends on the absolute purity of the grease, the fat being treated with alum, salt and nitre, and then washed frequently with plain water, so that the butter, thus purified, loses all trace of its animal odor. Each time fresh flowers are added the butter is worked over thoroughly with a knife so as to present a new surface to the flowers, until it finally becomes impregnated with the odor. It is then shipped in that condition to the various perfume factories, where it is mixed with strong alcohol, which extracts the odor from the butter or other fatty substance which is

used. As a rule it requires five pounds of flowers to one pound of butter, and one gallon of alcohol is used to eight pounds of the butter.

EVERLASTING FLOWERS.

When the summer flowers are gone, and especially if your home is located far from any greenhouse, it is pleasant to have some bouquets of everlasting flowers to decorate the mantel and other parts of the house. Among these the most prominent are the *Helichrysum*, *Gomphrena* and *Accroclinum*. Also there are many other varieties which can be used to advantage such as the *Ammobium*, Australian Star Flower, Gold and Silver Flower, *Rhodanthe*, *Statice* and *Zeranthemum*. All of these flowers are easily grown from seed and prove quite satisfactory. Bouquets of everlastings can be made up much more tastefully by using with them some of the ornamental grasses of which there are many varieties, notably the *Brizas*, *Bromus*, *Stipa Pinnata*, *Agrostis* and *Pampas* grass. The last named does not bloom until the second year, and being tender, it is necessary to take the roots into the cellar in the winter. Everlastings should be cut as soon as the blossoms come into full bloom, tying them in small bundles, and hanging them up, head downwards to dry. One of the most common everlastings with florists is the French Immortelle. These are not grown in this country, all of the flowers being imported from France. Many flower

lovers try to purchase seed of same, but it is a plant which seldom produces seed, and is propagated by cuttings or divisions of roots. Immense quantities of the flowers are grown in France, and they are imported either in their natural color, which is a clear lemon yellow, or they may be dyed in various shades, direct from the natural color. The usual manner, however, in dying these flowers is to bleach them out to pure white, and afterwards dye them, as the flowers take up the coloring matter much better after being bleached.

Aside from the ordinary varieties of everlasting there are many other plants produced which will help make up the everlasting bouquet. One of the most beautiful is sometimes sold under the name of Fairy Flower. It consists of a downy, fluffy looking ball of white, and is made from fibers of the common Milkweed. To prepare these flowers, it is necessary to cut open the pod and separate the plumes straight so that the seed ends are together, remove the seeds; tie a fine wire around the little bundle and draw it tight. When exposed to the air, it will fluff out, and make a ball. A little practice will enable one to make these balls very rapidly. There are many kinds of fancy grasses growing in the woods and swamps which are quite attractive in the winter bouquet.

The large flower heads of *Hydrangea Paniculata Grandiflora* can be picked at the various stages of their growth and if dried in the shade will hold their beauty, and be attractive throughout the winter.

Pressed Ferns.—Those who live where they can obtain ferns will find that the fronds when pressed make very pretty ornaments for decorating the walls or lace curtains for the winter. They should be carefully smoothed out and pressed in a heavy book between pieces of white paper as soon as gathered, as the leaves curl up very quickly when exposed to the air after cutting. The Maiden Hair fern (*Adiantum*) is one of the handsomest for pressing, as is also the so-called Hartford Climbing Fern.

WINTER DECORATIONS.

"The beautiful is as useful as the useful."—Victor Hugo.

At Christmas it is the universal custom to decorate churches and halls with holly, mistletoe, evergreens, etc., and during recent years the custom of decorating the home is becoming more universal. Almost everyone likes to brighten the living room by having a bright, green Christmas wreath hanging in the window, and sprays of holly over the chandeliers. Holly may be considered the most important item in our Christmas decorating. The leaves are dark, glistening green, with prickly edges, and branches with numerous clusters of bright red berries, making them peculiarly showy. This holly grows wild throughout Delaware, Maryland and Virginia, especially along the seacoast, also to a more limited extent elsewhere. There is another variety of Holly with smoother, more flat leaves, and not quite so many berries grown in the Southern States,

and as it usually sells at a lower price, considerable quantities of it are used, especially seasons when the Eastern Holly is scarce. The Lycopodium, which is also called Bouquet Green or Ground Pine, is one of the lightest and prettiest little evergreens and is used very largely for making garland or wreathing. This is a native of the Northern woods, growing only 6 to 8 inches high, and thickly covering the ground under the pine trees. It is gathered mostly by the Indians and tied into small bunches. It keeps nicely for weeks, is easily made into garland or wreathing by winding with small wire, using a strong cord for the core to wind it on, or it can be wound on itself, one stem following the other. It is also very generally used for making lettering.



"AIR FERN"

The Mistletoe branches are very popular decorations for holidays and especially for New Year's when many a young couple causes amusement by being caught "under the mistletoe." It is not used in large quantities, but almost everyone wants one or two branches.

Another hand-

some trimming is the Florida or Spanish Gray Moss, so noted throughout the South. It is used largely for festooning on chandeliers, around pictures, Christmas trees, etc., and gives a most graceful effect.

The so called "Air Fern" so largely sold in all parts of the country, is really a variety of sea moss which has been dried and colored to a beautiful bright green color. It is delicate appearing as well as graceful and attractive and may be suspended from a small basket, sea shell or other receptacle and appears to be growing.

FLOWER DAYS.

There are now quite a number of days which may be called "flower days." New Year's is noted as a time when flowers are sent to friends. No lover will forget Valentine's Day, February 14th, which is supposed to be the mating time for birds, and he would be dull indeed, who neglected to send a Valentine to his lady love, and what is better than a box of beautiful fragrant flowers! When McKinley's birthday (January 29th) comes, almost everyone in the large cities wears a pink or red carnation, President McKinley's favorite flower. Easter is of all days, the one when flowers are the most in demand, not only are the churches decorated, but every young man thinks he must have a box of flowers to send to his best girl. May Day is the day when all lovers give to their fair "ladye" a basket of beautiful blos-

soms, when even the children and old people exchange May baskets, and it is truly the festival of flowers.

Mother's Day is a more recent memorial day for the mothers and during the past few years it has become an almost universal custom, to on that day wear a flower of any kind in memory of your mother, white flowers are worn if the mother is dead, while any color of flower answers the purpose for the living. The first Sunday in May is generally recognized as "Mother's Day." Memorial Day, or Decoration Day, as it is called, is the people's day, and while it was primarily instituted on May 30th in memory of the soldiers, still it is now a time for decorating the graves of any of our friends who have passed away, and it is a beautiful custom.

On the first Monday in September Labor Day is celebrated. While it is not usually considered a day for flowers, still during the past few years, almost everyone who marches in the Labor Day procession wants to have his coat lapel decorated with some bright flower, and it has become a custom for them to wear an Aster on this gala day. In this city last Labor Day there were about seven thousand men marching in line and the majority never had worn flowers before except on previous Labor Days.

Thanksgiving is the time for home coming, and we cannot enjoy the feast which is spread to the fullest extent, unless the table is properly decorated with flowers.

Christmas is the day for giving gifts in memory of the Great Gift, which we all received. We like to do what we can to brighten the lives of others, and what helps more than a beautiful bunch of bright flowers, when perhaps all outside is covered with snow and appears so dreary? Christmas is also the time for Holly and Evergreen, and the windows everywhere are filled with Christmas wreaths of Holly and Lycopodium.

When we consider how much flowers do to brighten our lives, and perhaps our homes, we feel that it is impossible to have too many of them. We should make them part of our daily life. We need them in our homes, in our churches, and they will add grace and beauty everywhere. It is proper, therefore, that they should be made prominent on all of our holidays and gala occasions, and the presenting of flowers is the highest compliment we can make to those whom we love, or to the public orator, singer, or actress. They are not only used for funerals and weddings, but for school commencements, banquets, festivals, and on almost all occasions.

POPULAR NAMES FOR PLANTS.

As this book is intended for popular use we refer to the various plants by their most ordinary or commonly used names. In many cases this is different from the botanical or scientific name. We love the pretty little Pansies which look up at us with their bright, smiling faces, and it would be an outrage in common parlance to call them *Viola Tricolor Maxima*. We expect to always call the fragrant early flowering shrub which is such a favorite with everyone a Lilac, regardless of the fact that it is properly a *Syringa*, and what is commonly known as *Syringa* or Mock Orange is really *Philadelphus*.

We append here a list of the popular and botanic names for the same flower, which may be useful for reference. It is well to remember, however, that the same common name is not used universally in all parts of the country:

Artillery Plant.....	<i>Pilea</i>	Chamomile	<i>Anthemis</i>
Adams Needle	<i>Yucca</i>	California Poppy	
Aurora Flower.....	<i>Gaillardia</i>	<i>Eschscholtzia</i>
American Senna	<i>Cassia</i>	Canary Flower ..	<i>Tropaeolum</i>
Aster	<i>Callistephus</i>	Candytuft	<i>Iberis</i>
Balsam	<i>Impatiens</i>	Canterbury Bell..	<i>Campanula</i>
Bergamot	<i>Monarda</i>	Cape Gooseberry ...	<i>Physalis</i>
Bottle Gourd	<i>Lagenaria</i>	Carnation	<i>Dianthus</i>
Butterfly Flower... ..	<i>Schizanthus</i>	Caster Oil Plant... ..	<i>Ricinus</i>
Butterfly Flower... ..	<i>Asclepias</i>	Catchfly	<i>Silene</i>
Baby's Breath....	<i>Gypsophila</i>	Cone Flower	<i>Rudbeckia</i>
Blackberry Lily..	<i>Pardanthus</i>	Cockscomb	<i>Celosia</i>
Bell Flower.....	<i>Platycodon</i>	Columbine	<i>Aquilegia</i>
Bachelor's Button..	<i>Centaurea</i>	Cornflower	<i>Centaurea</i>
Bachelor's Button..	<i>Gomphrena</i>	Cowslip	<i>Dodecatheon</i>
Burning Bush.....	<i>Kochia</i>	Daisy	<i>Bellis</i>
Boston Ivy	<i>Ampelopsis</i>	Dragon's Head	
Banana Palm.....	<i>Musa</i>	<i>Dracocephalum</i>
Bleeding Heart.....	<i>Dicentra</i>	Day Lily	<i>Funkia</i>
Cardinal Flower.....	<i>Lobelia</i>	Everlasting Pea....	<i>Lathyrus</i>

Evening Primrose.. *Cenothera*
 Everlasting *Helichrysum*
 Feather Grass *Stipa*
 Feverfew *Pyrethrum*
 Flax *Linum*
 Flower-of-an-Hour . . *Nibiscus*
 Forget-me-not *Myosotis*
 Foxglove *Digitalis*
 Fraxinella *Dictamnus*
 Four O'Clock *Mirabilis*
 False Indigo *Baptisia*
 False Chamomile . . . *Boltonia*
 Flowering Maple . . . *Abutilon*
 Golden Rod *Solidago*
 Geranium *Pelargonium*
 Gas Plant *Dictamnus*
 Gentianella *Gentiana*
 Globe Thistle *Echinops*
 Gourd *Cucurbita*
 Heartsease *Viola*
 Hollyhock *Althaea*
 Honesty *Lunaria*
 Horn-poppy *Glaucium*
 Ice-plant *Mesembryanthemum*
 Indian Pink *Dianthus*
 Indian Shot *Canna*
 Jacob's Ladder *Polemonium*
 Larkspur *Delphinium*
 Lavender *Lavandula*
 Love Grass *Eragrostis*
 Love-in-a-Mist *Nigella*
 Love-lies-bleeding *Amarantus*
 Love-in-a-puff *Nigella*
 Lemon Lily *Hemorocallis*
 Mallow *Hibiscus*
 Marigold *Tagetes*
 Marvel of Peru *Mirabilis*
 Mignonette *Reseda*
 Monkey Flower *Mimulus*
 Monkshood *Aconitum*
 Musk Plant *Mimulus*
 Nasturtium *Tropaeolum*
 Moneywort *Lysimachia*

Moss Pink ... *Phlox Subulata*
Myrtle *Vinca*
Orange Lily ... *Hemerocallis*
Oswego Tea *Monarda*
Pansy *Viola*
Passion Flower ... *Passiflora*
Pot Marigold *Calendula*
Persicaria *Polygonum*
Picotee *Dianthus*
Pimpernel *Anagallis*
Polyanthus *Primula*
Poppy *Papaver*
Primrose, Chinese... *Primula*
Prince's Feather *Amarantus*
Red-hot Poker *Tritoma*
Ragged Robin *Lychnis*
Rocket, Sweet... .. *Hesperis*
Rock Rose *Helianthemum*
Skull Cap *Scutellaria*
Sensitive Plant ... *Mimosa*
Snapdragon *Antirrhinum*
Speedwell *Veronica*
Stock, German... *Matthiola*
Stock, Virginian. *Malcolmia*
Sunflower *Helianthus*
Sweet Alyssum ... *Alyssum*
Sweet Pea *Lathyrus*
Sweet Sultan *Centaurea*
Sweet William ... *Dianthus*
Sweet Scabious... *Scabiosa*
Shooting Star... *Dodecatheon*
Stonecrop *Sedum*
Thyme *Thymus*
Thrift *Armeria*
Toad Flax *Linaria*
Valerian, Red... *Centranthus*
Venus' Looking-Glass... *Specularia*
Violet *Viola*
Wallflower *Cheiranthus*
Winter Cherry ... *Physalis*
Wood Sorrel *Oxalis*
Yarrow *Achille*

PLANTS IN LIVING ROOMS.

As the season approaches for taking up and potting plants for winter decoration and blooming, the old saying that "growing plants in the house are injurious to the health" is again reiterated, although the idea was so long ago proved false and the opposite view clearly established. When we take into consideration the fact that but for vegetation, which purifies the atmosphere, we could not exist at all, the old opinion mentioned above is clearly untenable.

Through their manner of growth the leaves of plants, trees and shrubs, purify the atmosphere upon which we subsist, restoring it to its normal condition and imparting considerable quantities of ozone, thus rendering it healthy and salubrious. The plant feeds upon that constituent of the atmosphere in the living room which is injurious to us, and in return gives us an atmosphere adapted to our necessities. * As a matter of fact, no really good and sufficient reason has ever been given for excluding plants from rooms, but it is usually a hearsay argument, though it is well understood that such plants as Tuberoses and Jasmine, which exhale certain powerful odors, should not be kept in bed rooms unless the apartments are well ventilated.

Many experiments have been made to test this matter, and it has been proven that flowering plants are health producers, owing to the amount of ozone generated by them, and it has been asserted, that, however produced,

there seems to be no difference of opinion as to the value of ozone in our atmosphere. The majority of chemists are agreed that it is the great purifier, and not one attributes to it any deleterious influences.

As still other testimony it may be stated that an association of pharmacists in Paris, discussing this question of the influence of plants in bedrooms upon the health of the occupants arrived at the conclusion that plants are beneficial, especially to consumptives, plants without flowers being preferable to those in bloom.

In the window garden it is well to have some plants with fragrant leaves, such as peppermint, rose leaved and other scented geraniums, lemon verbena, etc., as they all give out a sweet scent, which is very pleasant, especially if there are no plants in bloom.

We are confident that plants in the living rooms do much good in other ways. The moral influence exerted by a geranium in brightening the homes and cheering the long winter months cannot be otherwise than good. Then don't be afraid of plants in any part of the house, as they are both cheerful and beneficial.



FERNS.

During the past few years Ferns have become the most popular of all plants for house culture. Their fresh, bright green color, handsome outline, beautiful foliage and graceful habit of growth give them a most charming decorative effect. There are several thousands of varieties from the very small creeping sorts to the tree ferns, sometimes forty feet high. Most of the varieties now under cultivation, including many beautiful forms, will thrive in any dwelling room, if given a place, away from the radiator and near a window, not exposed to the fullest sunlight. An east or north window affords an ideal place for Ferns. Although all ferns delight in a moderately warm and moist atmosphere, nearly all of those varieties, most valuable for house culture, soon adapt themselves to living room conditions.

Ferns should be frequently syringed to keep the foliage free from dust. While they like plenty of moisture still the pots must have good drainage to prevent danger of overwatering, which causes the soil to become sour and unsuitable for plant growing. If the pot containing the fern is kept in a jardinier care should be exercised to prevent the water accumulating and thus keeping the soil too wet. Ferns will not stand "wet feet" and at the same time it will not do to neglect them or they will suffer for lack of moisture. The best rule is to water the plant whenever the surface soil appears dry.

A good soil for Ferns consists of about one-third rich garden soil, one-third leaf mould or peat, and one-third sand, thoroughly mixed and pulverized. At the bottom of the pot should be placed about an inch of broken potsherds, pieces of brick, charcoal or some such material for drainage.

The most popular Ferns for house culture belong to the so-called Boston Fern class. The Piersoni, Whitmani, Elegantissima and other improved varieties have finely cut foliage and are very attractive.

Most varieties of ferns are easily propagated by division of roots or separating the root runners. They may also be propagated from fern spores which are produced on the underside of the leaves and might be called "seeds." They usually germinate very slowly and frequently moss accumulates in such a way as to interfere with their growth. Excellent success is sometimes secured by placing a soft brick in the pan of water, about an inch deep and sowing the seeds on top of the brick. The brick is quite porous, and will give the spores the proper amount of moisture at all times. If the pan is enclosed in a box covered with a pane of glass, raised just a trifle at one edge to secure ventilation, the temperature and moisture will be more even, and they grow more quickly. Fern spores may be started in a shallow box of soil which should be baked in the oven to kill all seeds or germs in it before sowing the Fern spores. Sometimes by covering the sur-

face of the soil with a very thin coating of powdered charcoal, it seems to keep the soil sweet and the ferns grow better.



HOME-MADE FERNERY

A Home-Made Fernery.—Quite often flower lovers have a north window in their living rooms in which they have difficulty in growing plants. They have perhaps a sufficient number of Palms, Rubber Plants, and specimen Ferns in other parts of the house, and we would suggest a home-made fernery, as one of the most interesting ornaments, where they can be put beside the north window. Such a fernery can be cheaply

made, by anyone who has a knack of handling tools. A neat wooden or sheet iron frame, lightly fastened together at the corners in such a manner as to hold the glass for the four sides is all that is necessary. It does not require the strong, tight frame for a aquarium. There should be space near the bottom, so that a little air can be let in if necessary. Although this is not one of the requirements. At the bottom of the fernery should be a pan about three or four inches deep, filled with good light

leaf mold or loose, rich, sandy soil, suitable for the growth of Ferns. In most localities many beautiful varieties of Ferns can be found growing in the woods, but the larger varieties sometimes do not do well in ferneries, but require outdoor growth. It will cost but little to



BOSTON FERN

obtain from the florist, plants of Maiden Hair Fern (*Adiantum*) and many other attractive varieties; also the *Lycopodiums*, *Selaginella*, and other similar plants for growing in the case, in fact, any of the small shade-loving plants will do well in such a location, and when properly arranged you will find great enjoyment in watching the growth of the plants. If your fernery is of good size, place some

rough rocks in the center or to one side with small ferns or mosses planted amongst them, and it will help give it an artistic effect. Do not try to crowd the fernery. Give the plants a chance to grow and increase. If you can secure some moss from the woods, it is well to cover the ground under the ferns with it, and especially put it around the edges. The entire fernery should be kept covered with a pane of glass to keep the temperature more even and retain the moisture. Water the earth thoroughly when you start your case, and about once a month shower the leaves. That is all the care a case requires through the winter, and it is a daily source of comfort and delight.

Hardy Ferns may be grown in the garden. With few exceptions they do best in a shady or semi-shady position in rich but well-drained soil, where they can be liberally supplied with water during dry weather. They prefer loose, friable soil or leaf mold.

PALMS.

There is no decorative plant more generally popular and satisfactory than the palm. Formerly they were quite expensive and considered exclusively a plant for the wealthy, as they usually sold at very high prices and their stately, noble, tropical appearance gives them a grand effect, worthy to decorate a mansion. It was then supposed that their culture was quite difficult, but now we know that if properly started and in thrifty condition they will stand considerable neglect and mistreatment.

They are of easiest culture and some varieties such as the Kentias and Cocus, are decidedly graceful in appearance.

As Palms are of a tropical nature they must have a fair amount of heat and moisture, espe-



LATANIA BORBONICA PALM

cially when they are small and therefore tender. It is best to water them thoroughly whenever the soil appears dry, and under ordinary conditions that would be once a day. Be careful to not overwater, as there is far greater

danger of that than of keeping too dry.

The leaves of Palms should be freely syringed with soft water and sponged quite frequently, especially if they are in a place where dust is apt to settle on the leaves. Young plants require considerable light, while established plants will do nearly as well in north windows. Palms do not require an excessive heat, and most varieties will stand a temperature as low as 40 degrees without any danger. It is best not to keep Palms in a room where gas is burned, as it is quite injurious to them. It is usually beneficial to repot about once a year, using fresh, fairly rich soil, but avoid using manure.

The most bothersome insect on Palms is the scale bug, although they are frequently attacked by red spider and mealy bug. For treatment refer to chapter on insects.

ROSES.

It is generally conceded that there is no sweeter or more beautiful flower than the Rose and none which is more universally satisfactory if given proper care. No home place is complete without them and, in fact, we cannot have an overabundance, as there are so many classes, colors and varieties that all tastes can be satisfied. There are not only hundreds, but actually thousands of varieties, belonging to various classes such as teas, hybrid teas, hybrid perpetuals, memorial, sweet brier, bourbons, rugosa, polyantha, moss roses, climbers, etc. Each class has a peculiar beauty

of its own and all are desirable in their place.

Roses love the sunshine, and should be planted where they will be open to the sunlight and a free circulation of the air for at least half of the day, and to obtain the best results they should not be shaded at any time. A southern exposure is ideal, but close proximity to trees and shrubbery should be avoided not only on account of the shade, but because the roots extending out under the roses rob them of moisture and nutriment. For best results they should be grown in a bed by themselves where they can be well cultivated and pruned and for this reason they should not be grown in the mixed border with shrubs.

The ideal soil for roses is a rich, deep, clayey loam, especially if somewhat fibrous. They not only grow better, but the flowers are of brighter color if there is some clay in the soil. but they are strong feeders and with the clay must have some richness and it should be sufficiently porous to permit of the ready drainage of surplus water. Any good garden soil, however, which will produce good vegetables will, with proper fertilization, yield very fine roses.

The soil should be deeply spaded and pulverized, at the same time mixing in some thoroughly rotted manure. Cow manure is generally preferred by most rosarians, or, should this not be at hand, ground bone may be used. Fresh horse manure is decidedly objectionable. After the beds are well dug and thoroughly pulverized, scatter the bone on the surface

until the ground is nearly covered; then with the use of a fork, it can be quickly and thoroughly mixed with the soil.

In this latitude it never pays to attempt planting roses in the fall because they cannot take root in their new location before cold weather sets in and are consequently liable to be winter killed.

Dormant roses may be planted just as early in the spring as the ground can be worked, being careful never to have it wet or soggy when plants are set out. Pot-grown roses may be planted as soon as all danger from hard frosts are past. April, May and June are the best months to plant in, in this latitude. If the plants are apparently dry or wilted when you receive them from the florist, soak the roots for several hours in lukewarm water before removing the moss or other packing around the roots. Do not let the roots dry out by exposing them to the air.

The small one-year-old plants should be set out about one foot apart each way, while the two-year-old or dormant roses may be planted eighteen inches to two feet apart. These large roses should be set deeply in the ground and if they are grafted plants—which can be easily seen by the swollen appearance of the stem near the juncture with the root—they should be planted so deeply that this root graft is about three inches under the surface of the ground. Many varieties of roses grow much more vigorously when grafted, but it is necessary to watch closely and pull up any sprouts

of the wild rose which come up from the root stock. These dormant roses should have all the branches cut off to within four to six inches of the ground and they will then send up vigorous shoots and bloom freely the first year.

When ready to plant make holes large enough to admit the plant with the roots spread out in their natural position and a little deeper than it has been growing, then cover the roots carefully with fine, moist earth, taking care to work it well in under and around the roots and then press down firmly with the hands so as to force out the air and bring the roots in actual contact with the soil. This is very important, as otherwise they are liable to dry out. Then pour in enough water to wet the roots thoroughly and add more earth to fill the hole rounding full and tread firmly down with the feet.

Water thoroughly occasionally, evening is the best time, but if the ground is kept mellow and well stirred, very little water is required unless in unusually dry times. Stirring the surface of the earth with the hoe or rake is better than watering, as it serves to bring up moisture from below and helps to keep the ground free from weeds and grass, which is very important. Let them bloom as soon and as much as they will, but be sure to keep the flowers picked off every day before they wither and fade, for if allowed to dry up on the bush they weaken its growth, and fewer blooms will be the result. The more vigorous

your plants grow the more they will bloom, and the finer and sweeter the flowers will be.

Careful and judicious pruning will encourage new growth and help to secure nice-shaped plants. Hardy varieties should be pruned every year as early in the spring as the frost is out of the ground and the weather will permit. The tender roses, Teas and the Hybrid Teas, need not be pruned until the sap begins to flow and the buds begin to swell, for at this time dead and weak wood may be much more easily distinguished and cut out than earlier in the season. If the very biggest and best flowers are wanted, then severe pruning is necessary; if a large crop of average flowers, then only moderate pruning.

Almost all varieties of roses will live out over winter if properly protected. It is a good plan to bend the whole plant down close to the ground and fasten by driving stakes or pegs crossing each other on each side to hold it in place; late in the fall cover the base of the plant with several inches of soil. After severe winter weather sets in and the ground is frozen, cover the entire plant with leaves, straw or coarse litter, the object being to keep the ground frozen and prevent frequent thawing and freezing.

In spring uncover gradually before the new growth starts, usually early in April in this latitude, prune the plants as directed and you will be rewarded with an abundance of bloom that will more than repay you for the trouble in caring for them.

SWEET PEAS.

The Sweet Pea may well be called America's favorite flower, as it is so popular and easily grown that everyone can enjoy its fragrance and beauty. During the past decade the shape of the flower has been greatly modified and the size increased by continuous high culture and selection. This was made specially prominent by the introduction of the Countess Spencer Sweet Peas in 1904. It was the first of the waved or Orchid-flowered type, but since then many other colors of the same form and large size have appeared, but to our mind none surpass the original Countess in beauty.

The Sweet Pea will ever be classed in the front rank of garden annuals, as it is of easy culture, blooms freely, is of delightful fragrance and unusual grace and beauty. It is decorative while growing in the garden, fine for vases and for corsage bouquets.

Any ordinary garden soil is suitable for their culture provided it is well drained so that the water does not stand around the roots to rot them off. They succeed better and the colors are brighter if there is some clay in the soil, but they are strong feeders and must also have richness.

Select a spot where the rows can run as nearly north and south as possible, with a good exposure to sunlight, avoiding trees, walls or anything that would shade them, the idea being to keep the sun on them from morning until night. If possible, trench in the fall

to a depth of a foot or eighteen inches, throwing out the soil and filling in with a layer of half-decayed cow manure and adding a good sprinkling of bone meal. Cover this with several inches of good garden loam. Let it stand through the winter in this condition and it will be ready for sowing in spring, or the seed may be planted in the fall and covered with two inches of soil and nothing more will be necessary until they push up in the spring. In case the soil was not prepared in the fall, it should be trenched in the early spring, as soon as the spade will enter the ground, throwing out the soil and putting in three or four inches of old rotted manure. Cover this with three inches of fine soil on which the seeds may be sown, and cover seed with one inch of fine soil, leaving four or five inches of trench still unfilled. Under no circumstances should fresh manure be used at any time, except for preparing the trench in the fall.

Early in the spring prepare your ground by making a wide furrow or trench about four inches deep. In this mark two parallel rows eight inches apart, and use one ounce of seed to ten feet of double row. Cover the seed with fine soil not more than two inches deep, and press the soil firmly down over it. Water thoroughly with a fine spray; then cover the trench with brush or something to protect the seed. In about ten days, when the sprouts appear, remove the brush, and fill in more soil from each side of the row, being careful not to cover the plants entirely, leaving a little

trench to hold water until it soaks down to the very roots.

If you have a greenhouse, hotbed or other conveniences for doing so, it is a good plan to start the Sweet Pea seeds in pots in February or March, sowing four or five seeds in each four-inch pot, and they will then be ready to set out as early in the spring as weather permits and will produce early flowers.

Sweet Peas are of a climbing habit and require support. Many use hazel brush for this



purpose and it is excellent, but it is not always convenient to obtain, especially for city people, and really we prefer the wire poultry netting. It comes in various width, the 48-inch being the most satisfactory and it is very in-

expensive. This netting, fastened to posts firmly set at each end of the rows, will make a neat, durable support that cannot be surpassed and will be serviceable year after year.

Keep the ground well hoed between the rows, not only to destroy the weeds, but to loosen the soil and conserve the moisture. Should the weather become very dry and hot mulch thoroughly with straw, grass or some similar substance.

From the time the seed begins to show through until the last blossom is picked from

the vines, our instructions are water—water frequently, water copiously, water continually; this, of course, provided the soil is not naturally soggy and swampy. The first six weeks of growing from seed is the most important, and water should be applied at least once every day during this time. Water should never be applied when the sun is shining. Spraying the vines after sunset will help to keep the foliage clean and in healthy, vigorous condition.

As soon as your Sweet Peas begin to bloom, pick them freely. Don't let one go to seed if you want the plant to continue to bloom. The old adage is true, "The more you give away the more you have." Place a vase of them on the dinner table and on the mantel daily. Send them to hospitals, churches and to less fortunate friends, and we venture to assert that you will enjoy your flowers better than ever before. By following these directions you will have such a floral display as will focus all eyes upon your garden and you can fairly revel in fashion's favorite flower from June to October.

SPRING-BLOOMING BULBS.

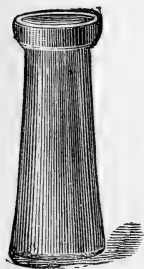
Many enthusiastic flower lovers think that the most beautiful and satisfactory, as well as the most easily grown of all our flowers, are those raised in the house and garden during the winter and spring months from "Dutch Bulbs," at a time when their beauty can best be appreciated because of the absence of other flowers. Nothing in the floral world surpasses

the bulbous flowering plants in richness or purity of flowers, and their coloring ranges from the most delicate shades to the gorgeousness of Oriental splendor. Among these we find the delightfully fragrant and beautiful Hyacinths, the showy Tulips, the elegant and popular Narcissus, the stately Lilies, the pretty little Crocus, and many other equally handsome kinds. While we ordinarily speak of them as "Dutch Bulbs," as most varieties are imported from Holland, still the Roman Hyacinths and Paper White Narcissus are from Southern France, the Easter Lilies and Freesias from Bermuda, Hardy Lilies from Japan, and other kinds of bulbs from Italy, Palestine, China, Mexico, etc.

For the winter garden there is nothing prettier or more desirable than a window nicely arranged with these, and a very small assortment will fill the house with fragrance. All are of the easiest culture and no one can fail to have "good luck." It has been well said that "A Dutch bulb can snap its fingers at the most stupid amateur and grow and bloom in spite of him whether the house be light or dark, hot or cold."

For house culture the bulbs may be started any time from the first of September to the last of November, but it pays to start them early. Pot them in fairly rich, sandy loam, water well and put them away in a cool, dark cellar, the object being to secure a good root growth before the top starts. They will usually be ready to bring to the light in three to

six weeks, but may be left longer if desired to delay flowering, and a succession of bloom can be secured in that way. Hyacinths, Narcissus and some other bulbs can also be grown in



Hyacinth glasses like the accompanying illustration. Fill glass with water so that it just touches the base of the bulb and put away in a dark place where temperature is about 40 to 50 degrees, to make a good root growth. All bulbs of this class will bloom better if the room where they are kept when brought to the light is not allowed to go above 60 degrees.

For outdoor culture October is the best time to plant bulbs, so that the roots may make a good growth before cold weather sets in, but they can be set out even later if the ground is not frozen. They require good soil that has been well manured for previous crops, or else apply well-rotted cow or sheep manure or bone meal; fresh manure is injurious to bulbs. The soil should be well drained. A small quantity of sand at the base of each bulb when planted in stiff soil will be beneficial. In planting, the bulbs should be placed from an inch to five inches below the surface, according to the size of the bulb.

The accompanying diagram shows depth of planting and distance apart to set the bulbs. After the ground freezes hard the bed should be covered with three or four inches of leaves

or litter, which should be removed in early spring.

The object of the covering is to keep the ground from frequent thawing and freezing. Too early and heavy covering starts the tops prematurely, so that they are sometimes in-

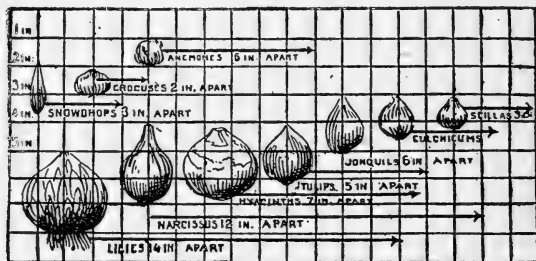


DIAGRAM FOR PLANTING BULBS

jured by March freezing and thawing. After flowering, if the beds are wanted for late spring planting, take up the bulbs, tops and roots, and "heel in" in some corner of the garden until the bulbs mature, after which they should be spread out in an airy room to dry, and kept in a cool, dark place until time for replanting the following autumn. As a rule however, it pays better to purchase fresh bulbs each year, as the Holland-grown bulbs are so much superior. Lilies and some other bulbs may be planted in permanent locations and do better if surrounded with some sand so as to keep the bulb away from direct contact with the soil.

LIST OF PLANTS.

The following alphabetical list of plants has been arranged in such a manner as to be convenient for reference as a guide to the cultivation of plants. It gives such information as is usually sought, in compact form.

Abbreviations are used as follows: Annuals including those plants of longer life usually grown, however, as one season plants are marked "A." Biennials are marked "B." Hardy Perennials marked "HP." The Tender Perennials (marked "TP") are not sufficiently hardy to stand our ordinary winters in this locality even with protection and must be brought inside. Most of the so-called greenhouse plants which are usually grown in pots as house plants belong to this class.

Climbing vines are marked "Cl;" trailing vines, "Trail;" shrubs, "Sh;" aquatics, "Aq." The usual height is marked in feet. The ordinary method of propagation is indicated as follows: By seeds, "s;" by cuttings, "c;" by divisions of root, "d;" by bulbs, "b." The average time of seed to germinate is stated in days.

Some plants where there are both tender and hardy sorts and climbers, as well as bush varieties, and some plants where there are both annual and perennial sorts we have indicated in the manner which seemed most important.

	Class.	Height in Feet.	Usually Propa- gated By.	Time to Germi- nate in Days.
Abutilon	TP	4	c	10
Abronia	A	trail	s	8
Acalypha	TP	2	c	
Achyranthes	TP	1	c	
Achillea	HP	1	d-c	12
Acacia	TP-Sh	6	c	
Acorus	HP	1	d	
Accroclinium	A	1	s	6
Aconitum	HP	4	d	
Adonis	A&HP	1	s-c	8
Adlumia	B-Cl	15	s-c	30
Aegopodium	HP	1	d	
Ageratum	A	1	s	4
Agrostemma	A	1	s	10
Akebia	HP-Cl	12	c	
Alternanthera	TP	$\frac{1}{2}$	c	
Althea	HP-Sh	4	c	
Alyssum	A	$\frac{1}{2}$	s-c	12
Almond	HP-Sh	2	c	
Alonsoa	A	2	s	12
Amaryllis	TP	2	b	
Amaranthus	A	3	s	6
Ambrosia	A	2	c	
Ampelopsis	HP-Cl	20	c	
Ammobium	HP	3	s	4
Anthemis	A&HP	2	d-s	12
Antirrhinum	A	2	s	10
Anemone	HP	1	b	
Apios	HP-Cl	15	b	
Aquilegia	HP	2	s	12
Arabis	HP	1	s	6
Aralia	HP-Sh	10	d	
Aristolochia	HP-Cl	20	c	
Artillery Plant	TP	1	c	
Arctotis	A	2	s	10
Argemone	A&HP	2	s	12
Artemesia	A	1	s	12
Asclepias	HP	3	d-s	10
Asparagus	TP-Cl	2 to 12	s	20
Asters	A	1	s	6
Astilbe	HP	1	d	
Asperula	A&HP	1	s	12
Azalea	TP-Sh	2	c	
Bartonia	A	2	s	8
Balloon Vine	A-Cl	10	s	10

	Class.	Height in Feet.	Usually Propa- gated By.	Time to Germi- nate in Days.
Balsam	A	2	s	10
Bellis	HP	$\frac{1}{4}$	s	6
Begonias	TP	1 to 4	c-s	10
Bignonia	HP-Cl	50	c	
Bitter Sweet	HP-Cl	20	c	
Blue Bells	HP	1	s	10
Bocconia	HP	4	d-s	20
Boltonia	HP	3	d	
Bougainvillea	TP-Cl	20	c	
Bouvardia	TP	2	c	
Browallia	A	2	s	6
Bryophyllum	TP	2	c	
Brachycome	A	1	s	10
Bryanopsis	A-Cl	5	s	8
Buttercup	HP	1	d	
Cactus	TP	$\frac{1}{2}$ to 10	c	
Caladium	TP	3	b	
Callas	TP	2	b	
Calycanthus	HP-Sh	3	c	
Calystegia	HP-Cl	10	c	
Campanula	B	1 to 4	s	10
Candytuft	A	1	s	6
Canna	TP	4	d-s	10
Carnation	TP	1	c-s	6
Calceolaria	A	1	s	10
Calendula	A	1	s	5
Calliopsis	A	1	s	6
Catananche	HP	2	s	10
Calandrinia	A&HP	$\frac{1}{2}$	s	12
Callirhoe	HP	trail	s	15
Catchfly	A&HP	2	s	6
Cacalia	A	2	s	6
Centrosema	HP-Cl	8	s	
Centaurea	A&HP	1 to 3	s	4
Celosia	A	2	s	4
Chrysanthemum	A&TP	2	s-c	4
Cineraria	TB&HP	1	s	6
Cinnamon Vine	HP-Cl	8	b	
Cleome	A	2	s	10
Clianthus	A	6	s	30
Clematis	HP-Cl	20	c	
Clerodendron	TP-Cl	10	c	
Clarkia	A	$1\frac{1}{2}$	s	8
Clitoria	TP	15	s	6
Coccoloba	TP	1	c	

	Class.	Height in Feet.	Usually Propa- gated By.	Time to Germi- nate in Days.
Coboea	A-Cl	20	s	20
Coleus	A	2	s-c	6
Coreopsis	HP	½ to 2	s	6
Cornus	HP-Sh	8	c	
Commelina	TP	2	s	10
Convolvulus Major	A-Cl	5 to 15	s	6
Convolvulus Minor.....	A	2	s	6
Cosmos	A	2 to 6	s	4
Crocus	HP	½	b	
Cuphea	TP	1	s-c	6
Cyclamen	TP	½	s-b	40
Cydonia	HP-Sh	5	c	
Cyperus	Aq	2	s-d	10
Cypress Vine	A-Cl	10	s	4
Dahlia	TP	3	d-s	6
Datura	A	3	s	15
Delphinium	HP	2	s	30
Deutzia	HP-Sh	6	c	10
Dicentra	HP	1	d	
Dianthus	A	1	s	6
Digitalis	HP	3	s	10
Didiscus	A	½	s	15
Dolichos	A-Cl	10	s	6
Eleagnus	HP-Sh	6	c	
Eschscholtzia	A	1 to 2	s	6
Euphorbia	TP-A	3	c-s	10
Eupatorium	A&HP	1	s	6
Eulalia	HP	5	d-s	
Exochordia	HP-Sh	8	c	
Farfugium	TP	1	d	
Ferns	TP&HP	1 to 3	d-s	30
Ficus	TP	8	c	
Flowering Currant.....	HP-Sh	3	c	
Forsythia	HP-Sh	6	c	
Freesia	TP	2	b-s	20
Fuchsia	TP-Sh	3	c-s	8
Funkia	HP	1	d	30
Gaillardia	A&HP	2½	s	6
Geranium	TP	1½	c-s	6
Genista	TP-Sh	2	c-s	12
Gilia	A	1	s	7
Glechoma	HP	trail	c	
Gladiolus	TP	2	b-s	20

	Class.	Height in Feet.	Usually Propagated By.	Time to Germinate in Days.
Gloxinia	TP	1½	s	20
Godetia	A	1	s	8
Golden Rod	HP	2	s	60
Gomphrena	A	½ to 1	s	10
Gourds	A-Cl	8 to 15	s	10
Grevillea	TP	5	s	10
Gypsophila	A	½ to 2	s	6
Helianthus, Hardy.....	HP	3	d	
Heliotrope	TP	2	c-s	20
Hemerocallis	HP	2	d	
Hedysarum	HP-Sh	3	s-d	6
Helichrysum	A	2	s	6
Hibiscus	HP	4	s	6
Hollyhock	B	4	s	4
Honeysuckle	HP-Cl	10	c	
Hoya	TP-Cl	8	c	
Hyacinth	HP	1	b	
Hyacinthus	TP	2	b	
Humulus	A-Cl	15 to 20	s	10
Hunnemannia	A	2	s	15
Ice Plant	A	½	s	7
Impatiens Sultana	A	1	c-s	20
Ipomea	A-Cl	5 to 15	s	10
Iris	HP	1 to 3	d	
Jacobaea	A	1	s	10
Jasmine	TP-Cl	10	c	
Job's Tears	A	1½	s	10
Kaulfussia	A	1	s	10
Kochia	A	2½	s	8
Kudzu Vine	HP-Cl	40	c-s	15
Lantana	TP	2	c-s	15
Lathyrus	HP	4	s	8
Larkspur	A	3	s	10
Lemon Tree	TP-Sh	8	c	
Lemon Verbena	TP	2	c	
Linaria	A	¾	s	12
Lilac	HP-Sh	8	c-d	
Lilies	HP	3	b	
Lily of the Valley.....	HP	1	d	
Linum	HP	2	s	7
Lobelia	HP	½ to 1	s	6
Lychnis	HP	½ to 2	s	6

	Class.	Height in Feet.	Usually Propagated By.	Time to Germinate in Days.
Maize, Striped	A	5	s	6
Marigold	A	2	s	4
Martynia	A	1½	s	8
Maurandia	TP-Cl	10	s	15
Matthiola	A	1	s	6
Mandevilla	TP-Cl	10	c	15
Madeira Vine	TP-Cl	12	b	
Manetta Vine	TP-Cl	10	c	
Matrimony Vine	HP-Sh	12	c-d	
Mignonette	A	1	s	6
Mimulus	A	1	s	4
Mimosa	A	1	s	10
Mirabilis	A	2	s	7
Mina Lobata	A-Cl	15	s	4
Momordica	A-Cl	10	s	7
Moon Flower	A-Cl	15	s-c	12
Monardia	HP	2	d	
Montbretia	TP	2	b	
Moschosma	TP	2	c	
Musa Ensete	TP	10	s	30
Musk Plant	A	½	s	10
Myosotis	TP	½	s	15
Myrtle	HP	trail	c	
Narcissus	HP	1	b	
Nasturtium	A	1 to 6	s	8
Nemophila	A	1	s	10
Nicotiana	A	5	s	10
Nigella	A	1	s	6
Nierembergia	TP	2	s	15
Nymphaea	HP	Aq	d-s	30
Oenothera	HP	3	s	6
Oleander	TP-Sh	6	c	
Orange Tree	TP-Sh	8	c	
Otthona	TP	trail	c	
Oxalis	TP	½	b-s	10
Paeonies	HP	2	d	
Palms	TP	3 to 20	s	20
Panicum	A	3	s	10
Pansies	A	½	s	10
Pardanthus	HP	3	d	
Parrot's Feather	TP	Aq	c	
Passion Flower	TP	6 to 20	s-c	20
Pentstemon	HP	1½ to 3	s	10

	Class.	Height in Feet.	Usually Propa- gated By.	Time to Germi- nate in Days.
Perilla	A	1½	s	15
Pelargoniums	TP	2	c	
Pennisetum	A	2	s	10
Petunia	A	2	s	10
Phacelia	A	1	s	10
Phlox, Drummondi	A	1	s	10
Phlox, Hardy	HP	2	c	
Physostegia	HP	3	s	12
Platycodon	HP	2	s-d	12
Plumbago	TP	4	c	
Poppy, Common	A	2	s	10
Poppy, Hardy	HP	3	s	10
Portulaca	A	½	s	8
Primula	HP	¾	s	20
Purple Fringe	HP-Sh	8	c	
Pyrethrum	TP	2	s-c	10
Ranunculus	HP	2	b	
Rhodanthe	A	1	s	10
Ricinus	A	5 to 10	s	15
Roses, Tea	TP	2	c	
Roses, Hardy	HP	3	c	
Roses, Climbing	HP-Cl	10	c	
Rocket	HP	2	s	10
Robina	HP-Sh	6	c	
Rudbeckia	HP	3	d	
Russella	TP	2	c	
Salpiglossis	A	2	s	6
Salvia	TP	2½	s-c	4
Sagittaria	TP	Aq	d	
Sambucus	HP-Sh	8	c	
Saponaria	HP	1	d	
Sanseveria	TP	2	c	
Santolina	TP	1	c	
Saxafraga	TP	trail	d	
Scabiosa	A	2	s	10
Scarlet Runner	A	8	s	6
Schizanthus	A	2	s	6
Sedum	HP	½	c-s	4
Selaginella	TP	½	c	
Shasta Daisy	HP	3	s-d	15
Silk Vine	HP-Cl	15	c	
Smilax	TP-Cl	6	s	30
Snowball	HP-Sh	10	c	
Snowberry	HP-Sh	3	c-d	

	Class.	Height in Feet.	Usually Propa- gated By.	Time to Germi- nate in Days.
Solanum	TP	2 to 8	c-s	20
Spirea	HP-Sh	2 to 6	c	
Stocks	A	1	s	4
Stokesia	HP	2	s-d	15
Stephanotis	TP-Cl	12	c	
Stevia	TP	2	s-c	4
Streptosolon	TP	4	c	
Strobilanthes	TP	6	c	
Sunflower	A	2 to 8	s	7
Sweet William	HB	2	s-d	6
Sweet Sultan	A	2	s	8
Swainsonia	TP	4	c	
Sweet Peas	A-Cl	6	s	10
Syringa	HP-Sh	8	c	
Tamarix	HP-Sh	8	c	
Thunbergia	A	5	s	10
Tigridia	TP	1	b	
Torenia	A	2	s	15
Tritoma	TP	2	d	
Tropaeolum	A	10	s	10
Tuberoses	TP	2	b	
Tulip	HP	1	b	
Valeriana	HP	2	s	10
Veronica	HP	1	s	6
Verbena	TP	trail	s	10
Viscaria	A	1	s	4
Vinca	TP	trail	c-s	15
Violet	HP	½	s-c	60
Wallflower	TP	1	s	6
Wahlenbergia	HP	3	d	
Wandering Jew	TP	trail	c	
Water Hyacinth	TP	Aq	d	
Weigela	HP-Sh	8	c	
Whitlavia	A	2	s	6
Wistaria	HP-Cl	30	c-s	20
Wild Cucumber	A	20	s	30
Xeranthemum	A	2	s	10
Yucca	HP	3½	s	30
Zephyranthes	TP	1	b	
Zinnia	A	2	s	4

FLORAL NOTES.

Just a "mixed bouquet" of items gathered by the wayside while preparing this book and which there seems to be no special place for, but which may prove of interest to the flower lover.

Sports.—Frequently a geranium will sport and produce a branch on which every leaf is pure white. It is quite handsome and we presume hundreds or thousands of persons have tried to propagate such sports, but it is useless. The cuttings will not root and the plant has not sufficient strength to be able to take up an independent existence. If, however, the branch or sideshoot is spotted, striped or variegated white and green, it will usually root and continue to show its distinct markings.

Blue Hydrangea.—We have frequently received inquiries regarding the Blue Hydrangea from persons who desired plants which would bear flowers of that hue. There is no variety, however, which will bear blue flowers in all kinds of soil, but it is not uncommon for the Hydrangea Hortensia and other pink-flowered varieties to produce blue flowers when the soil contains certain constituents. The usual manner of securing this result is to mix iron filings in the soil, which is used to pot the plant. If the plant is already potted, and you do not wish to disturb it use only water containing iron rust, when watering same, or stir up the surface soil and sprinkle with iron filings. Use a weak solution of alum or ammonia when wa-

tering the plant and it will make the iron rust more rapidly and put it in such shape that the plant can take it up.

Double Flowers.—Many plants produce double flowers in a wild state, and some which are usually single may become double from good cultivation. Florists wishing to obtain double flowers of any kind watch for a tendency to doubleness and preserve such specimens separately, so as to breed from them year after year, each time selecting the plant having the most double flowers. In a few generations this tendency is intensified into the desired form. The stamens frequently changing to petals, and as a rule the double flowering sorts produce less seed for that reason.

Balsams.—Frequently customers are disappointed with their Balsams, as all the flowers come single instead of double, and they think that they have good reason to complain of the seed dealer. The seed, however, from which these were produced may have been the very choicest double Balsams. Frequently when the season is damp and the plants grow very luxuriantly, the vigor of the plant seems to be devoted to producing foliage, and the flowers are single. By picking off the flowers and part of the foliage, it tends to concentrate the vigor of the plants into new flowers, and the subsequent flowers which appear are usually double.

Green Carnations.—About St. Patrick's Day the florists' windows usually contain vases of bright green carnations much to the wonder-

ment of flower lovers. The manner of preparing them is as follows: Take as fresh flowers as possible of the ordinary pure white carnations and dip the stems in green ink. This is taken up by capillary attraction and it is quite interesting to watch the color working through the minute veinings of the petals until they assume the rich green hue all over. Any other color of analine dyes can be used in the same manner. A few years ago a florist in this city who had a call for green carnations and did not know how to make them dipped the entire flower in green ink. They were worn by a lady, attached to her white silk dress as a corsage bouquet. The color of course came off and the florist was obliged to pay for the alleged damage to the dress.

Red Tuberoses.—It is said that red Tuberose flowers may be produced by growing in pots and about the time the plant is in bud make several incisions in the bulb with a knife and water with red analine dye solution.

Expensive Seed.—In producing a high-bred plant either in flowers or vegetables, the effort is made to secure perfection as nearly as possible, and frequently much of its vitality is sacrificed so that it produces but very little seed, and that is frequently of low vitality. This is true with almost everything in the vegetable kingdom, except such plants as are grown especially for seed purposes, as for instance, the oil-producing plants. Many persons wonder why it is that improved varieties of flower

seeds always sell at so much higher price, and still they are frequently of inferior vitality. For instance, the ordinary old-fashioned single Petunia seed can be produced for a few cents per ounce, while extra select seed of the large, ruffle flowered, fine colored Petunias sometimes sells as high as \$50.00 per ounce, and the best double flowered Petunia \$200.00 per ounce, or ten times its weight in gold. Although this seed is so expensive still owing to the manner of producing it by hand hybridization even the choicest strains of it will usually produce only about 25 per cent of double flowers, the other 75 per cent being the ordinary single flowered plants, which are pulled up and thrown away as soon as they show their character.

The seed of these expensive varieties is identical to all external appearance with the cheaper sorts, therefore, the seed business is a trade which depends entirely on the public confidence. The seedsman who handles the very choicest seeds which cost from perhaps ten to twenty times as much to grow as the ordinary stock, frequently receives a complaint from some unappreciative customer, that his seeds are very expensive and do not come up well, while some seeds of his own growing, all sprouted, and were growing like weeds. When the plants come to perfection, however, the critical observer would soon realize that there was a difference in quality.

Varying Types.—We have frequently been asked why it is that certain varieties fail to

come true from seed. While with most varieties of plants the progeny is identical or nearly identical with the parent plant, still some sorts do not come at all true. This in cultivated plants is probably the result of a crossing between various kinds which has taken place in order to perfect the improved variety and it is not at all unusual to find a flower differing in color from that producing the seed. Notable examples of this are Tulip, Geranium, Verbena, Dahlia, and Petunia. There are also many species which after having been grown apparently true to name for years, will break from the original type and amaze the grower with its new form, and colors heretofore unknown. This habit of breaking in vegetable or farm crops, such as Cauliflower, Celery, Corn, etc., has frequently caused trouble to seed dealers and sometimes the gardener is disappointed with the seed which he purchased although the variation in quality or type is in no way the fault of the seedsman who naturally is blamed for carelessness in selecting his seed stock.

Annuals, Etc.—In describing the various classes of plants, we ordinarily speak of as annuals, those which in cultivation are usually or preferably grown from seed each year. Strictly speaking, an annual is a plant which is grown from seed and dies the same year, after producing flowers and seeds. Biennials are plants which do not ordinarily bear flowers nor seed until the second season and then die. Many of our cultivated biennials become an-

nuals if grown in a warm or long season climate. Perennials do not ordinarily bloom until the second or some later season and then continue to live on and bloom or bear fruit or seed year after year.

Parlor Aquatics.—Persons who like aquatic or bog plants, can have a dish of them growing in the house without giving space to an aquarium by filling a china bowl or other receptacle with sponge and planting the various kinds of aquatic plants between the pieces of sponge. There are a vast number of such plants as naturally grow in swamps or on margins of the streams or ponds which will look nice in such a position. Grass seeds can also be sprinkled on the sponge, and will succeed well for quite a while.

Giving Away Flowers.—There is an old saying: "You can't eat your goodies and keep them, too." This, however, is not the case with flowers, as the more you give, the more you have. There is, therefore, a peculiar satisfaction in their culture. During the blooming season, many of our best plants will produce an abundance of flowers continually, if the blooms are taken off as soon as fairly open. This is particularly true with Sweet Peas. If they are allowed to fade and produce seed, they discontinue blooming; therefore, if you want flowers cut them frequently; have them on your table every day, send them to your friends, to the sick, or those in trouble, supply the church and any clubs to which you

belong; a gift of flowers is always appreciated at all times, and on all occasions. As the heart of the giver is made lighter in this way, they benefit both the recipient and the donor.

Plant Shipments.—When plants are received from a distant florist by mail or express they will be greatly benefited if the roots are placed in lukewarm water for an hour or two before planting. This will restore them to their previous freshness and they will start growing much more vigorously.

Wintering Plants.—Large plants such as Oleanders, Agaves, Bay Trees, etc., which have grown too large to be kept in the sitting room or conservatory may be wintered successfully in any dry frost-proof cellar. As the object is to keep them as nearly dormant as possible do not water often, but keep the soil as dry as you safely can without permitting the plants to shrivel. Even large Geraniums, Hibiscus, Salvia and Roses can be kept successfully in this manner.

Mulching.—Some plants are impatient of dry soil and in order to keep them in good growing condition it is necessary to put a layer of straw, dried grass or some similar substance around them. This not only helps to keep the soil moist, but smothers out the weeds. In the winter a mulching is also quite desirable to protect the plants from frequent freezing and thawing. Do not apply the mulching until the ground is frozen, as the object is to keep it frozen, the plants being

better protected in that way. The frost also helps to kill insects in the ground and prevent the destructive work of field mice.

Dust Mulch.—During the past few years we have been using a dust mulching around our plants during very dry weather with excellent results. This is done by avoiding any deep stirring of soil during dry spells, but thoroughly working the top half inch or inch until it is pulverized into a fine dust. This acts as a blanket over the ground and holds the moisture around the roots of the plants, the capillary attraction by which the moisture is ordinarily conveyed to the surface being shut off. The dry farming system by which such wonderful crops are grown in the dry, arid sections of the West is handled in this way. Try it in your flower garden and you will be pleased with the results.

Grafting. We presume there are few of the readers of this book who will want to undertake grafting plants in any general way, but there are some kinds, which are easily made and when properly grown make quite curious specimens. One of the best to experiment with is the *Epiphyllum Truncatum*, or Crab Cactus. This is also called Christmas Cactus. owing to the fact that it produces an immense number of bright red flowers, and is usually in full bloom about Christmas time. It can be grafted on almost any upright growing variety of cactus, but is usually attached to the night blooming cereus or *Pereskia Aculeata*. In order to graft them, take either one

section or several sections of the Epiphyllum, and having made a slit in the tip of Pereskia, insert it, and it can be held in place by transfixing with a pin, a tooth-pick, or one of the Pereskia's spines. A number of pieces of the Crab Cactus can be grafted around the top of the Pereskia, so as to make an umbrella-shaped plant of it. After grafting, keep the plant in warm temperature, and it will soon knit so as to sustain its life from below and when covered with myriads of bright crimson flowers it will be an object of great beauty.

Forcing Shrubs. An interesting experiment during the late winter or early spring is to cut a few twigs a foot or so in length from the early flowering shrubs, plum trees, apple trees, etc., and place them in a vase of water in the house. Split the bark in several places on that part of the twig which extends down into the water to enable it to draw up or absorb more moisture. Place in a dark cupboard for two to four days and change the water daily. Then remove to the full sunlight of a warm south window and sprinkle with warm water frequently to prevent the bark becoming shriveled and to keep free from dust. In a short time the leaves will begin to expand and will soon be followed by the welcome flowers. There is much pleasure in watching the gradual unfolding of the buds and the sprays of beautiful, unseasonable flowers richly repay one for the trouble.

TABLE OF CONTENTS

	Page
Love of Flowers.....	5
Botany	9
How New Varieties Originate.....	14
Sleeping Flowers	18
Growing from Seed	19
Propagation of Plants	24
Potting Plants	32
Hotbeds	34
Private Greenhouses	36
Window Gardening	43
Hanging Baskets and Vases.....	53
The Flower Garden	59
Hardy Perennials	64
Hardy Shrubs	67
Ornamental Vines	69
Rockerles	75
Aquatic Plants	78
Children's Gardens	82
Grandmother's Garden.....	83
Plants for Shady Places.....	84
The Back Yard	87
Landscape Gardening	90
Lawns	96
Cemetery	102
Insects and Plant Diseases.....	107
Weeds	113
Cut Flowers	115
Women Florists	123
Sweet-Scented Flowers	125
Everlasting Flowers	128
Winter Decorations	130
Flower Days	132
Popular Names for Plants.....	135
Plants in Living Rooms.....	137
Ferns	139
Palms	143
Roses	145
Sweet Peas	150
Spring Blooming Bulbs	153
List of Plants	157
Floral Notes	165

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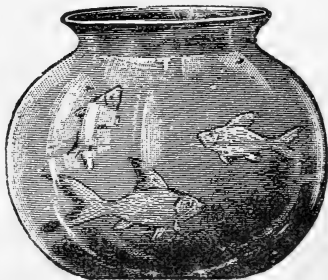
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